Franklin County Regional Transportation Plan

2020

A vision for the County's transportation systems

frcog

2020 Franklin County Regional Transportation Plan

July 23, 2019

Prepared by:

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TPO ENDORSEMENT

Franklin County Transportation Planning Organization
Franklin County Long Range Regional Transportation Plan
July 23, 2020

The Franklin County Transportation Planning Organization (TPO) endorses the 2020 Franklin County Long Range Regional Transportation Plan.

SIGNATORY CERTIFICATION
11900

Bryan K Pounds for
Stephanie Pollack, Secretary and CEO
MassDOT

7-23-19
Date

Richard J Marte for
Jonathan Gulliver, Highway Administrator
MassDOT Highway Division

7-23-19
Date

Maureen Mullaney for
Kevin Fox
FRCOG Executive Committee

7/23/19
Date

Bill Perlman
Regionally Elected Representative to the FRCOG

Date

Michael Perreault
Lance Fritz, Chair
Franklin Regional Transit Authority

7/23/19
Date

William Martin, Mayor
City of Greenfield

Date

Robert A Dean
Robert Dean

7-23-19
Date

West County Sub-Regional Appointment

________________________________ ________________
Vacant Date
Central County Sub-Regional Appointment

________________________________ ________________
Jane Peirce Date
East County Sub-Regional Appointment

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Introduction

2020 Regional Transportation Plan

1 Introduction

Franklin County is the most rural county in the Commonwealth and as a result, transportation planning and its implementation pose interesting challenges. Its sparse population and large geographical area naturally constrain many modes of travel beyond that of the private automobile. The large area that the transportation network covers also makes it difficult to efficiently provide improvements. In spite of these obstacles, Franklin County has had a very successful track record in maintaining, improving, and preserving its transportation system. The Franklin County Regional Transportation Plan, which is updated every four years, helps to provide a clear vision of the county and prioritizes its needs in a context that is suitable for the rural nature of the region.

This Regional Transportation Plan (RTP) update focuses on the importance of providing safe, efficient, and resilient mobility for residents and freight, while taking into account the rural character of the county. The RTP specifically emphasizes the following goals: preservation and improvement of the existing transportation system, while also maintaining the region's scenic and natural resources; providing residents with transportation options to the singly-occupied vehicle; strengthening the local economy and industries; and improving the region's livability and resiliency.

As in years past, safety is a major focus for this update to the RTP. The safety of the regional transportation system has been and will continue to be a high priority when evaluating and setting the agenda for regional transportation projects and activities. For this reason, projects that will make the existing system safer, more efficient, more secure and better able to support the goals of this RTP are prioritized in the region rather than those that will create new roads or add capacity to the region's roadways. As always, the maintenance of the existing infrastructure is a critical and ongoing task for the communities in Franklin County.

A newer, but equally important focus for this update is system resiliency. Projects that reduce the vulnerability of the existing infrastructure to natural disasters, including the mitigation of storm water impacts are important to the region's ability to adapt to the changing climate and maintain a durable transportation network.

Through the completion of this Regional Transportation Plan update, the accompanying public participation process, and other planning work conducted by the Franklin Regional Council of Governments (FRCOG), it is clear that there is a very strong interest in expanding the transportation system to include additional transportation options to the singly-occupied vehicle.

Specifically, there is a very strong demand for expanded public transit services either through the establishment of new routes to unserved areas of the region, or the initiation of additional service runs on existing routes. The on-going expansion of the Franklin County Bikeway and the focus on the concept of complete streets has prompted increased interest in bicycling and walking as viable and healthy transportation options. Additionally, the establishment of new park-and-ride facilities throughout the county, and the return of passenger rail services to the region, has further heightened interest in other modes of transportation.

During the development of the 2020 Regional Transportation Plan, a particular emphasis was placed on public participation and outreach. Chapter 2 details the public participation process that was undertaken during this update. The Franklin County Transportation Planning Organization (FCTPO) recognizes that there are finite financial resources available to advance the recommendations of this report. Therefore, in order to ensure that the recommendations are realistic, a financial component has been included as part of this plan.

The Franklin Regional Council of Governments

The Franklin Regional Council of Governments (referred to as the FRCOG) serves the towns of the Franklin County region in western Massachusetts. The FRCOG integrates regional and local planning, human service advocacy and coordination, and the provision of municipal services such as cooperative purchasing and building inspection to advance the following regional goals:

- Balance economic development with the protection of natural and cultural resources, and with the rural character and heritage of the region;
- Ensure the most economical creation and delivery of public services in a rural region comprised of many political subdivisions; and
- Build healthier communities by developing and connecting broad-based coalitions, which raise the level of expectations for community achievement.

The FRCOG advocates on behalf of its member communities at the state and federal level to ensure that funding, programs, and policies are sensitive and respond to the rural nature, economic strengths, and human and natural resources of the region.

Additionally, the FRCOG serves as one of the Commonwealth's thirteen (13) Regional Planning Agencies and Metropolitan Planning Organizations (MPO). An MPO consists of a Committee of Signatories, who together makes decisions about transportation planning goals, projects, priorities, and funding. In Franklin County, this group is referred to as the Franklin County Transportation Planning Organization (FCTPO). In its role as a FCTPO member, the FRCOG follows federal transportation planning regulations, including the establishment of a citizen advisory group to participate in transportation planning activities. The FRCOG staff is responsible for coordinating and working with the other FCTPO members to develop, implement, and routinely update the Regional Transportation Plan for Franklin County, as well as provide a wide range of other planning services.

The FCTPO is governed by a Memorandum of Understanding (MOU) that was executed in 2006 and updated in 2010. As defined by the MOU, the TPO's committee membership contains nine members including the following representatives:

- The Secretary and CEO of the Massachusetts Department of Transportation (MassDOT) (to act as the Chair of the FCTPO);
- The Administrator of the Highway Division of MassDOT;
- The Chair of the Franklin Regional Council of Governments Executive Committee;
- The Chair of the Franklin Regional Transit Authority;
- The Franklin Regional Council of Governments Regionally Elected Official;
- The Mayor of Greenfield; and
- Three Franklin County Sub-Regional Appointments (one from the West County, one from Central County, and one from the East County sections of Franklin County as defined in the MOU).

The MOU defines that the FCTPO shall have the responsibilities of developing, reviewing, and adopting the region's annual transportation Unified Planning Work Program, the Regional Transportation Plan, the Transportation Improvement Program, and air quality conformity determinations. The MOU further states that the FCTPO shall have the responsibility of meeting all of the provisions of the federal 3C (Continuing, Cooperative, Comprehensive) Transportation Planning Process that may include: the initiation of studies, evaluation and recommendation of transportation improvements, and the programming of funds for transportation projects in the region for which funding is sought for implementation. The MOU also states the FCTPO shall be the forum for cooperative decision-making by officials of local government, regional planning commission, regional transit authority, and state officials representing state transportation agencies.

The MOU defines that the Franklin Regional Planning Board (FRPB) will act as an advisory board to the FCTPO in order to ensure that all transportation decisions are considered within the context of comprehensive regional planning. The composition of the FRPB includes a Select Board and Planning Board member designee from each town as well as 18 at-large members. The FRCOG is, by state designation and consistent with applicable federal transportation laws, the primary transportation planning staff for the FCTPO and also serves as the principal source of transportation planning for local and regional transportation projects.

Fixing America's Surface Transportation Act (FAST Act)

The federal legislation that guides transportation planning (including Regional Transportation Plans) and implementation is called Fixing America's Surface Transportation (FAST) Act. On December 4, 2015, President Obama signed the FAST Act into law as the latest federal transportation legislation, which guarantees funding for highways, highway safety, public transportation, and other modes of transportation. The FAST Act builds on the previous legislation, Moving Ahead for Progress in the 21st Century Act (MAP-21), which created a new, streamlined and performance-based program in 2012. It also builds on many of the highway, transit, bike, and pedestrian programs and policies established under the previous transportation legislations.

The FAST Act addresses the many challenges facing our transportation system today, such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment, as well as laying the groundwork for addressing future challenges. It focuses on a mutli-modal program that promotes sustainability and economic development. In addition, the legislation seeks to reduce delays in project delivery and adds an emphasis on freight movement. This Regional Transportation Plan was developed within the framework of the FAST Act's requirements and focuses on the priorities of this transportation legislation.[1]

The following Table 1-1 is a list of the Ten Planning Factors that the FAST Act considers to be a priority. The Table shows how the various chapters of the Regional Transportation Plan addresses each planning factor.

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[1] United State Department of Transportation, Federal Highway Administration, A *Summary of Highway Provisions in FAST Act,* FHWA website, https://www.fhwa.dot.gov/summary of FAST Act, 2019.

Table 1-1: FAST Act Ten Planning Factors and How the RTP Addresses Them

FAST Act Ten Planning Factors		Corresponding RTP Chapter
1)	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.	Chapter 4, 5, 6
2)	Increase the safety of the transportation system for motorized and non-motorized users.	Chapter 13
3)	Increase the security of the transportation system for motorized and non-motorized users.	Chapter 13
4)	Increase the accessibility and mobility of people and for freight.	Chapter 5, 6, 7, 8
5)	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.	Chapter 4, 10, 12
6)	Enhance the integration and connectivity of the transportation system, across and between modes for people and freight.	Chapter 5, 6, 9, 10
7)	Promote efficient system management and operation.	Chapter 5, 12, 13
8)	Emphasize the preservation of the existing transportation system.	Chapter 5, 12
9)	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.	Chapter 12
10)	Enhance travel and tourism.	Chapter 11

The Regional Transportation Plan

The FAST Act requires that each MPO complete a regional transportation plan and update it at least every four years. The FAST Act further specifies that:

> "…the Plan and TIPs for each metropolitan areas shall provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the metropolitan planning area and as an integral part of an intermodal transportation system for the State and the United States… The long-range plan must describe the performance measures and

> targets used in assessing system performance and progress in achieving the performance targets."

In summary, a Regional Transportation Plan is a planning document that details existing conditions, identifies current deficiencies, and projects future needs related to transportation systems for a particular geographical area. The RTP reviews all types of transportation, including vehicular, rail, air, bus, bicycle, and pedestrian. The RTP is intended to set the vision for the region's transportation system and is updated at least every four years. The update is an opportunity to review and update transportation priorities within the region. The Regional Transportation Plan is required to forecast the transportation needs of the region for the next twenty years (the year 2040 for this plan) and it is required to do so in the context of financial constraint. This Plan also establishes performance measures so that future progress in meeting the region's goals can be assessed.

The recommendations in the Franklin Regional Transportation Plan provide the framework for transportation projects in the county. It is from this Plan that projects are chosen to be designed, funded, and implemented. Historically, the region has been very successful with the rate at which the RTP's recommendations have been implemented. Table 1-2 at the end of this chapter shows that out of the twenty-five recommendations from the previous 2016 Regional Transportation Plan, five have already been completed and another fourteen are in progress or are nearly completed.

Vision Statement for this Regional Transportation Plan

In 2013, the FRCOG along with regional partners and input from many stakeholders, created the *Sustainable Franklin County: A Regional Plan for Sustainable Development*. This comprehensive Plan examined the long–term needs of the Franklin County region with a focus on sustainability. The following vision statement comes from *Sustainable Franklin County* and still accurately reflects the region's character and goals for the future. This RTP fits within the framework of that vision.

The Regional Plan for Sustainable Development's vision for Franklin County is one in which economic vitality and social equity will thrive in balance with our natural and cultural resources. Our region's agricultural, forestry, and manufacturing heritage and history of innovation and creativity will provide a strong foundation for increased local living-wage jobs, more affordable and energy efficient housing, increased utilization of locally-grown and produced clean energy, and revitalized town centers. Sound infrastructure, sustainable transportation options that support mixed use development and reuse of historic structures in our town centers, and reduction of fossil fuels are essential to increasing the sustainability of our region. Sustainable development decisions and long-term planning policies that include energy efficiency and conservation as well as climate change adaption and mitigation will effectively and equitable meet the needs of all current and future generations of Franklin County.

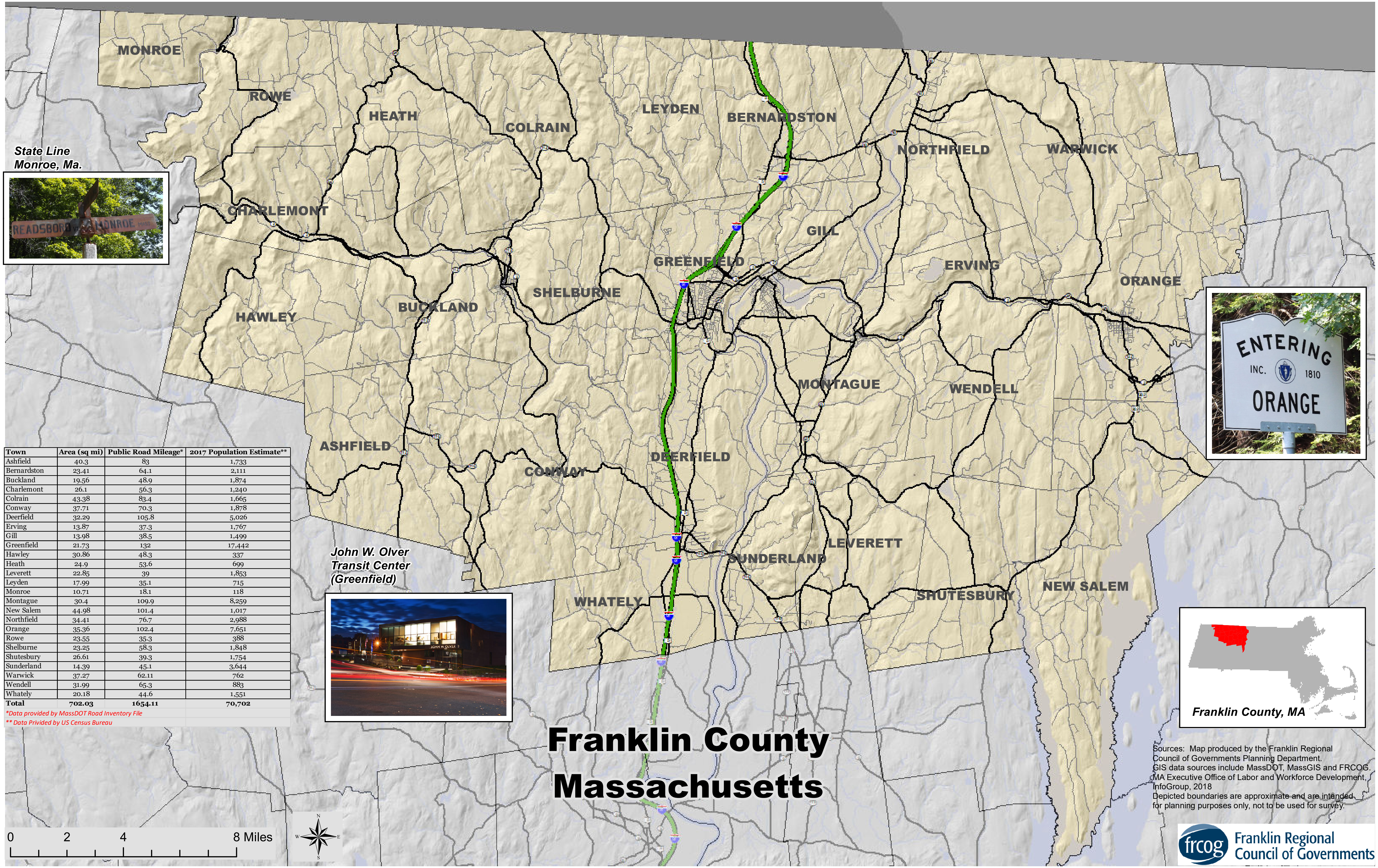
As made clear in the 2018 Governor's Commission on the Future of Transportation in the Commonwealth, the future is uncertain and various growth and/or technology scenarios may develop. This Regional Transportation Plan outlines the general needs and issues that Franklin County faces while acknowledging that adaption will be necessary for a resilient and efficient transportation system that serves all modes and populations.

Entrance to the JWO Transit Center, Home of the FRCOG Offices

Top 25 Recommendations from 2016 Regional Transportation Plan*

	Recommendation	Status	Notes
1	Implement passenger rail service between Greenfield and Springfield	Completed	
2	Create a parking garage near the Regional Transit Center to facilitate regional commuting and downtown revitalization.	Completed	
4	Advocate for bicycles to be permitted on the Amtrak Vermonter passenger rail	Completed	
3	Acquire Scenic Easements along Designated Scenic Byways	Completed / Ongoing	
5	Create additional Park & Ride lots throughout the County.	Completed / Ongoing	
6	Reconstruct Conway Street, South Street, and Conway Road in Buckland	In Progress	Is at 25% design and is programmed for 2021 of the TIP.
7	Rehabilitate the General Pierce Bridge	In Progress	Design has begun and funding has been included in the CIP
8	Expand Bus Service throughout the county	In Progress	A Comprehensive Service Analysis has prioritized ways to expand service. Funding is needed for implementation.
9	Increase frequency & extend bus service hours during evenings and weekends.	In Progress	A Comprehensive Service Analysis has prioritized ways to expand service. Funding is needed for implementation.
10	Advance Route 2 Safety Improvements in Farley, Erving Center, and Gill/Greenfield	In Progress	Improvements are under design in Erving Center and Farley, and in preliminary planning for Gill/Greenfield.
11	Implement safety and traffic flow improvements on Route 2 West in Greenfield near the commercial developments west of the Interstate 91/Route 2 rotary.	In Progress	A Road Safety Audit was completed and resulted in additional recommendations. Project is under design and is programmed for 2022 of the TIP.
12	Resurface and repair North Main Street (Rt. 47) in Sunderland	In Progress	Is at 25% design and is programmed for 2020 of the TIP.
13	Improve intersections at Main Road, Jacksonville Road, and Greenfield Road in Colrain	In Progress	Is at 25% design and is programmed for 2020 of the TIP.
14	Reconstruct North Main Street in Orange	In Progress	Is at 25% design and is programmed for 2023 of the TIP.
15	Remove the existing Schell Bridge over the Connecticut in Northfield and replace with new pedestrian and bicycle bridge.	In Progress	Project is under design and is programmed for 2021 of the TIP.
16	Continue implementation of trailblazing signs along the Franklin County Bikeway	In Progress	Sign locations have been identified for all routes. Funding for purchase and installation is needed.
17	Resurface roadway and construct pedestrian accommodations on Routes 5/10 in Whately and Deerfield	In Progress	Is at 25% design and is programmed for 2020 of the TIP.
18	Construct a sidewalk to Mohawk Trail Regional High School along Rt. 112 and North St.	In Progress	MassDOT & Buckland agreed to shoulder widening instead of sidewalk construction (due to snow clearing issues). Project is in preliminary design and is programmed for 2022 of the TIP.
19	Reconstruct and improve drainage system on Haydenville Road in Whately	In Progress	Is under preliminary planning and is programmed for 2022 of the TIP.
20	Implement Complete Streets recommendations on East Main Street (Rt. 2A) in Orange connecting the Town Center with Walmart and other commercial services.	Preliminary Planning Phase	Complete streets assessments and recommendations have been made. Design and construction funding needed.
21	Plan for east-west passenger rail from Franklin County to Boston	Preliminary Planning Phase	Regional legislative representatives have filed legislation asking for a feasibility study.
22	Design and implement safety improvements for bicyclists/pedestrians on Turners Falls Road connecting Greenfield and Turners Falls	Preliminary Planning Phase	Pedestrian and bicyclists counts have been conducted. A road safety audit has also been conducted with recommendations for one of the intersections.
23	Design and implement safety improvements for bicyclists/pedestrians on Leyden Road in Greenfield	Preliminary Planning Phase	Preliminary planning is being completed.
24	Construct a Bikeway to connect the downtowns of Orange and Athol	Preliminary Planning Phase	Preliminary feasibility studies have been completed.
25	Create an Erving-Wendell Bike Path to connect Erving Center with Farley and Ervingside	Preliminary Planning Phase	A feasibility study was completed in 2012. Private property issues will need further investigation.

*Projects are not listed in any order of priority. Status as of February 2019.



Town	Area (sq mi)	Public Road Mileage*	2017 Population Estimate**
Ashfield	40.3	83	1,733
Bernardston	23.41	64.1	2,111
Buckland	19.56	48.9	1,874
Charlemont	26.1	56.3	1,240
Colrain	43.38	83.4	1,665
Conway	37.71	70.3	1,878
Deerfield	32.29	105.8	5,026
Erving	13.87	37.3	1,767
Gill	13.98	38.5	1,499
Greenfield	21.73	132	17,442
Hawley	30.86	48.3	337
Heath	24.9	53.6	699
Leverett	22.85	39	1,853
Leyden	17.99	35.1	715
Monroe	10.71	18.1	118
Montague	30.4	109.9	8,259
New Salem	44.98	101.4	1,017
Northfield	34.41	76.7	2,988
Orange	35.36	102.4	7,651
Rowe	23.55	35.3	388
Shelburne	23.25	58.3	1,848
Shutesbury	26.61	39.3	1,754
Sunderland	14.39	45.1	3,644
Warwick	37.27	62.11	762
Wendell	31.99	65.3	883
Whately	20.18	44.6	1,551
Total	**702.03**	**1654.11**	**70,702**

*Data provided by MassDOT Road Inventory File

** Data Privided by US Census Bureau

Franklin County
Massachusetts

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. MA Executive Office of Labor and Workforce Development, InfoGroup, 2018

Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

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Public Participation & Title VI Activities

2020 Regional Transportation Plan

2 Public Participation Process

Federal transportation legislation requires that each metropolitan planning organization prepare a transportation plan every four years. The legislation also mandates that an inclusive participation process be completed as part of the plan's development. The latest iteration of the federal transportation legislation, Fixing America's Surface Transportation (FAST) Act, has placed particular emphasis on the public participation process. Specifically, it calls for increased interagency consultation, the use of visualization techniques in the public participation process, and outreach to organizations and groups that are impacted by transportation issues. Attention was particularly paid to population classes protected by federal Title VI requirements (part of the Civil Rights Act of 1964). These classes include: race, color, national origin, age, sex, and disability. This chapter describes the public participation process that the FRCOG and the FCTPO used in the development of this RTP.

The Franklin County Transportation Planning Organization and the FRCOG's Continuing, Cooperative, and Comprehensive (3C) Transportation Planning Process

The Franklin Regional Council of Governments receives federal funds to conduct regional transportation planning on behalf of the Franklin County Transportation Planning Organization (FCTPO) and is therefore required by law to carry out a continuing, cooperative, and comprehensive (3C) transportation planning process. This process depends on significant public involvement, and requires that all plans and programs consider all modes of transportation and support community development and social goals. The FCTPO is responsible for monitoring the progress of the regional transportation planning processes and making the final decision regarding any regionally significant projects to be included in the Regional Transportation Plan.

Public Participation Requirements of FAST Act

The FAST Act requires that the Regional Transportation Plan be developed in consultation with the State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation. The legislation further states that consultations with these agencies should take into account plans, maps, and inventories of natural and/or historic resources as available and applicable. In addition, the FAST Act states that the planning process used by the metropolitan planning organization (in this case the FCTPO) should serve to promote consistency between transportation improvements and State and local planned growth and economic development patterns.

The legislation, the FAST Act, notes that the public participation process associated with the development of the plan shall be developed in consultation with all interested parties and allow all interested parties a reasonable opportunity to comment on the contents of the transportation plan, and to the maximum extent practical, should include the following as a part of that task:

- Hold any public meetings at convenient and accessible locations and times;
- Employ visualization techniques to describe the transportation plan;
- Make public information available in electronically accessible format and means, such as online, as appropriate to afford reasonable opportunity for consideration of public information.

Public Outreach and Input during the Development of the Regional Transportation Plan

Public input is an essential component in the creation of the Franklin County Regional Transportation Plan. The input FRCOG received as part of its outreach efforts helped shape and inform the RTP's goals and recommendations. The RTP is a public document that was reviewed by all levels of government including: the FCTPO; the Franklin Regional Planning Board (FRPB); the local communities; representatives of regional, state, and federal agencies; and organizations and members of the public representing a wide array of interests. This section describes the public outreach and participation efforts conducted by the FRCOG staff.

Public outreach during a Municipal Vulnerability Preparedness Workshop

Initial Public Outreach

At the beginning of the update process for the Regional Transportation Plan, the FRCOG developed a public participation strategy that sought to obtain public input from as many and diverse populations as possible. The strategy included hosting public forums, distributing a survey, and attending many stakeholder meetings. Four public forums were held between December 2018 and January 2019. They were held at locations throughout Franklin County to facilitate attendance from all subregions. To further ensure that as many stakeholders as possible were provided the opportunity to comment on transportation in Franklin County, FRCOG staff also attended many meetings of various organizations throughout the region and made presentations regarding the update process and asked for project ideas and feedback. In addition, the FRCOG staff discussed the plan informally when meeting with town boards and local and regional organizations to solicit further input regarding the update or ideas for transportation projects in the county. The details for all of these meetings can be seen in Table 2-1.

At all of the public forums, the update process was explained, examples of past Regional Transportation Plans were provided, and visual aids (PowerPoint presentation, pictures, and maps) were used to augment the discussion. The forums were announced several weeks prior with ads placed in local newspapers, the FRCOG website, Facebook page, and Twitter feed. In addition, personal invitations were sent to a wide array of stakeholders announcing the Regional Transportation Plan update and the dates of the forums (see Appendix A for a list of stakeholders that were contacted and for a summary of the public input that was received). The feedback received during these forums and organization meetings helped form and validate the recommendations of the RTP.

To augment the input received from the public forums, the FRCOG also created a survey about transportation issues within the county. The survey was geared towards a general audience and can be viewed, along with the results, in Appendix C. The survey was available both in an online format and in hardcopy. The general survey that the FRCOG distributed looked to capture several specific pieces of information. Namely, survey respondents were asked: to rate the state of the existing transportation infrastructure; to describe their current daily travel modes and routines; and what their top three recommendations and priorities would be for transportation improvements in the region. The FRCOG received over 230 completed surveys from county residents and used the information provided in the surveys to help inform the findings and recommendations of the RTP.

During the update of this Regional Transportation Plan, draft chapters were made available for review on the FRCOG website (www.frcog.org). In addition, information regarding the update was regularly posted on FRCOG's social media, including Facebook and Twitter.

Final Public Outreach and Approval Process

Once the FRCOG staff had completed a draft of the 2020 Regional Transportation Plan, public input was sought from a variety of stakeholders as well as those required by the FAST Act during a 21-day public review and comment period between June 28 and July 18, 2019. The draft RTP was available for public review through a variety of means, including: press releases and legal notices to local media, mailings to stakeholders and interested individuals/ agencies/ organizations, notices on the FRCOG Facebook and Twitter accounts, and posting of the draft on the FRCOG website. Additionally, an online StoryMap was created that summarized the RTP's findings and recommendations with pictures, maps, and charts to create a concise, visually appealing summary of the Plan.[1] The link to the StoryMap was distributed through the same methods mentioned above.

There were also two public meetings held on July 16, 2019 in the centralized location of Greenfield to directly obtain public input regarding the draft RTP. One meeting was held at 12:00pm to coincide with bus schedules and the other meeting was held at 5:00pm to allow people working during the day to attend the meeting. The 12:00 lunchtime meeting was also held with a focus on interagency consultation – many agencies that may be impacted or interested in the Regional Transportation Plan were invited to this meeting. Visual aids, such as a PowerPoint presentation, maps, and photographs were used during this meeting to help attendees visualize the RTP and its recommendations.

As part of this outreach, the FRCOG received several comments on the draft RTP. Those comments that were received were reviewed and incorporated, as appropriate, into the RTP during its preparation (all comments received can be seen in Appendix B). Following the official FCTPO Public Participation Plan's requirements of a minimum twenty-one day review period, the FCTPO endorsed the 2020 Regional Transportation Plan by vote, following an official report and discussion, at a meeting open to the public at large.

Environmental Justice and Title VI

In 1994, a Presidential Executive Order directed every federal agency to make Environmental Justice part of its mission by identifying and addressing the effects of all programs, policies, and activities on "minority populations and low-income populations." The

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[1] RTP_Summary_StoryMap

U.S. Department of Transportation has addressed this directive by involving the potentially affected public in developing transportation projects that fit harmoniously within their communities without sacrificing safety and mobility. This initiative recognizes that effective transportation decision-making depends upon understanding and properly addressing the unique needs of different socioeconomic groups. Title VI is a section of the Civil Rights Act of 1964 prohibiting discrimination based on race, color, national origin (including limited English proficiency), age, sex, and disability. All federally-financed programs must ensure that all people be able to participate fully in the public participation process.

The Franklin Regional Transportation Plan has identified a number of goals in support of Environmental Justice and Title VI. There is a commitment that planning and programming within the region be nondiscriminatory and that all segments of the Franklin County population are able to participate fully in regional transportation planning processes and to access transportation facilities and services.

Beginning in 2001, the Franklin Region Unified Planning Work Program (UPWP) has had a specific task for Environmental Justice and Title VI-related activities. The work under this task has focused on the following:

- Analyzing and mapping U.S. Census Bureau data on income and race in order to identify Environmental Justice target areas that have the greatest concentration of minority populations and residents living below the poverty level;
- Conducting an Equity Analysis based on approved projects in the TIP. This analysis was updated for this RTP. Reviewing current transit routes and the level of service for the Franklin County region, especially in the identified Environmental Justice target areas, and working with the regional transit agencies to find ways to maintain and improve transportation services in the region, as funding allows;
- Conducting outreach to low-income, minority, and vulnerable health populations[2], as well as community organizations to identify unmet transportation needs among these groups and develop strategies for addressing them; and
- Reviewing and strengthening current transportation planning and decision-making processes to increase the representation of low-income and minority residents.

For this update to the RTP, staff used the previously identified 18 Environmental Justice areas that the FRCOG identified in its “2015 Transportation Equity Analysis” to conduct a review of the recommended projects from this Regional Transportation Plan , in order to determine if the Environmental Justice areas will receive an equitable distribution of transportation funding compared to the region as a whole over the next twenty years.[3] The Environmental Justice areas are listed in the following Table 2-1. This analysis shows that in many aspects, the populations within the Environmental Justice areas are better served by the existing transit system than Franklin County residents as a whole, and that 78% of projects recommended in this Plan occur in the EJ areas. In addition, 63% of funding for the recommended projects are allocated to EJ areas.

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[2] Franklin County does not have any identified vulnerable populations, but the FCTPO is aware that there may be small pockets of vulnerable persons and is working with regional/municipal partners to identify them.

The Environmental Justice (EJ) areas have been the focus of the FCTPO's EJ initiatives and the FCTPO has worked to increase representation of these EJ populations in the public participation and transportation planning processes. In addition, the FRCOG has also worked to increase its outreach and representation of Title VI/Nondiscrimination populations. The primary method that FRCOG has used to contact these populations has been through outreach to social service agencies and organizations that serve Franklin County. The FRCOG staff is active with the Franklin County Resource Network (FCRN), which is a large network of social service providers who serve a range of populations throughout Franklin County and the larger region. Staff also regularly attend meetings of the Franklin County Immigration Service Providers, the Franklin County Opioid Task Force, and the Community Health Improvement

Table 2-1: Environmental Justice Areas in Franklin County

Environmental Justice Area 2015	Which Criteria Met?	
	Poverty Criteria	Minority Criteria
Colrain, eastern portion		X
Deerfield, northern portion		X
Erving, western portion		X
Gill, entire town		X
Greenfield, Cheapside area		X
Greenfield, town center and surrounding areas	X	X
Greenfield, west of I-91/Leyden Woods	X	X
Monroe/Rowe/Charlemont	X	
Montague, Millers Falls	X	
Montague, non-urban area		X
Montague, Turners Falls	X	X
Northfield, northern portion	X	
Orange, town center and surrounding areas	X	
Shelburne, Shelburne Falls	X	
Shutesbury/Leverett		X
Sunderland, entire town		X
Warwick/east Erving	X	
Wendell, entire town	X	X

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[3] EJ Areas are defined as blockgroups where minorities comprise at least 9% of the population and at least 12% of the population is below the poverty level.

Plan Steering Committee, among others that focus on the needs of underrepresented populations in the region. The FRCOG staff is continuing to work steadily to make new contacts to reach Title VI and environmental justice populations.

Access to Essential Services

The FRCOG is aware of the critical role of transportation in community access to essential services. The FRCOG is currently working on this issue by focusing on a variety of modes. Working in partnership with the FRTA, the FRCOG is exploring the applicability of microtransit to the region and how that may increase access to residents who live in areas with no transit service. The FRCOG is also focusing on creating "last mile" connections for pedestrians and bicyclists with the Complete Streets program so that individuals without vehicles can also access services.

Consideration of Environmental and Land Use Issues

During the update to the 2020 Regional Transportation Plan, the FRCOG considered a wide range of issues and incorporated these factors throughout the RTP and its recommendations. These issues included: environmental, land use, historic preservation issues, and local and regional priorities and concerns. To ensure that the draft RTP is compatible with other land use/resource protection plans, the FRCOG contacted representatives of state and local agencies responsible for land use management, historic and natural resources, and environmental protection. These representatives included: regional land conservation trusts, the Massachusetts Historic Commission, the MA DEP, MA DCR, MA EOEEA, and others.

In addition, when preparing the RTP, the FRCOG considered land use and environmental issues and the consistency between transportation planning and other planning activities, through its dual role as the staff for the FCTPO and as the Regional Planning Agency (RPA) for the Franklin County region. As the RPA for the Franklin County, the FRCOG has statutory responsibility for the coordinated and orderly development of the region, including regional growth planning and transportation planning. The RPA staff overlaps with the FCTPO staff, with most FRCOG transportation staff involved in planning activities beyond transportation. The RPA works with towns, regional organizations, and State agencies on land use, open space, and natural resource planning, and assists towns with zoning revisions and redevelopment projects. The FRCOG has also worked on a many municipal Master Plans, Open Space and Recreation Plans, watershed assessment plans, scenic byway corridor management plans, regional economic development plans, and hazard mitigation plans, among others. The FRCOG has also assisted a number of towns with zoning revisions to support smart growth development patterns. In 2013, the FRCOG completed *Sustainable Franklin County: A Regional Plan for Sustainable Development*. Through an intensive public outreach effort, this plan identified proposed Priority Development Areas and Emerging Development Areas for Franklin County.

Interagency Consultation

Coordination with Local Agencies

The FRCOG provides technical assistance to Franklin County towns, and works as partners with many local organizations and agencies. This work ranges from performing traffic counts, to identifying and preparing local grant applications, to creating a wide assortment of planning documents. The local agencies and committees that were consulted in the update of this Plan include:

- All twenty-six municipalities in Franklin County
- Franklin Regional Transit Authority
- Franklin Regional Housing and Redevelopment Authority
- Mount Grace Land Conservation Trust
- Franklin Land Trust
- Franklin County Community Development Corporation
- Franklin County Resource Network
- Franklin County LifePath
- Councils on Aging
- MassHire, Franklin Hampshire Career Center
- Franklin County Chamber of Commerce
- Greenfield Community College
- Franklin Regional Planning Board
- Franklin County Regional Emergency Preparedness Council

Coordination with State and Federal Agencies

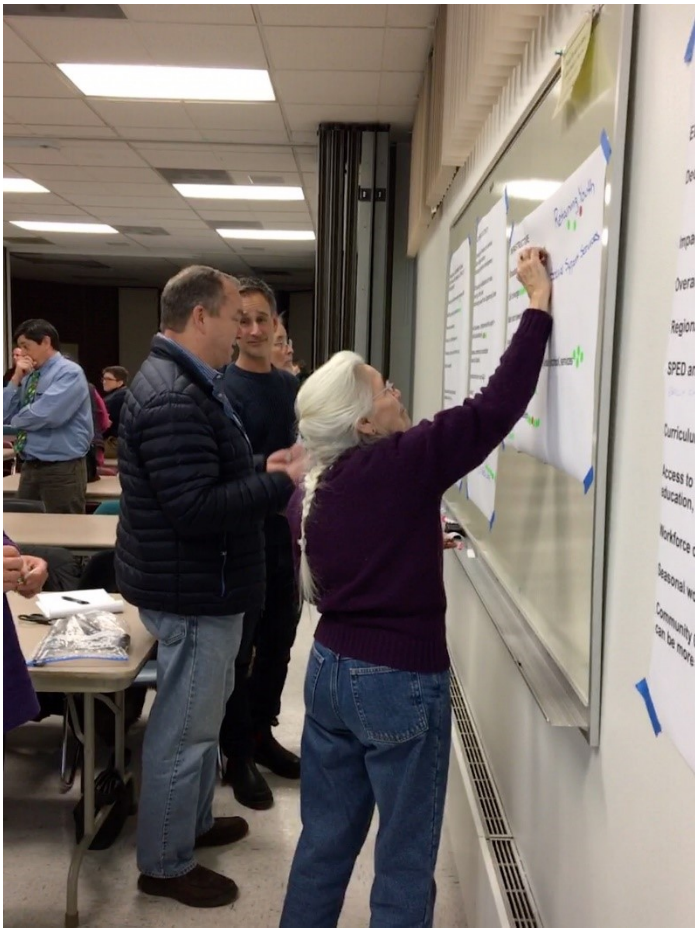
As part of its routine work, the FRCOG also works with a number of state and federal agencies. This is especially true since the vast majority of Franklin County's transportation (and other) projects are funded by the state and federal government. The state and federal agencies that were consulted in the update of this RTP include:

- Massachusetts Department of Conservation and Recreation (DCR)
- Massachusetts Historical Commission
- MassDOT, Highway District 1 and 2 and Office of Transportation Planning
- MassDOT Rail Division and MassDOT Transit Division
- Massachusetts Department of Housing and Community Development (DHCD)

- Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA)
- Massachusetts Department of Environmental Protection (DEP)
- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)

Coordination with Other Local MPOs

In addition to coordinating transportation planning with local and state agencies, the FRCOG also works closely with its neighboring MPOs. It has a long standing relationship with the other western Massachusetts MPOs of the Berkshire Regional Planning Commission (BRPC) and the Pioneer Valley Planning Commission (PVPC). Recently, the FRCOG has also begun working more closely with its Vermont and New Hampshire counterparts, specifically the Southwestern Regional Planning Commission (SWRPC) in New Hampshire and the Windham Regional Commission (WRC) in Vermont. The FRCOG has partnered with all of these MPOs on many cross-regional contracts.



Public outreach during a Rural Policy Advisory Commission Listening Session in Greenfield

Table 2-1: RTP Public Participation Outreach

Date	Type of Meeting	Audience	Location
November 1, 2018	Small Town Summit	Attendees included: municipal representatives from small towns in the region.	Belchertown
November 8, 2018	FRTA Transit Advisory Committee/ Regional Coordinating Committee	Attendees included: FRTA, members of the FRTA Transit Advisory Council and Regional Coordinating Council, MassMobility, Community Action, Montague Catholic Social Ministries, MassRIDES, Transportation Justice for Franklin County, Greenfield Town Council representatives, and members of the public.	Greenfield
November 27, 2018	Community Health Improvement Plan (CHIP)	Attendees included: Baystate Franklin Medical Center, Clinical & Support Options, Communities that Care Coalition, Community Action, Community Health Center of Franklin County, FC Housing & Redevelopment Authority, LifePath, North Quabbin Community Coalition, Opioid Task Force of FC, United Way.	Greenfield
December 7, 2018	Opioid Task Force's Treatment & Recovery Committee	Attendees included: Franklin County Opioid Task Force, Family RECOVER, FRTA.	
December 11, 2018	Senate President Spilka Listening Tour	Attendees included: Senate President Spilka, Senator Jo Comerford, Representative Natalie Blais, Western Mass Food Bank, Community Action, Task Force to End Homelessness, Greenfield Housing Authority, Franklin County Resource Network.	Hatfield (Western Mass Food Bank)
December 11, 2018	RTP Public Forum	Attendees included: municipal representatives.	Colrain
March 14, 2019	FRTA Transit Advisory Committee/ Regional Coordinating Committee	Attendees included: FRTA, members of the FRTA TAC and RCC, MassMobility, Community Action, Montague Catholic Social Ministries, MassRIDES, Transportation Justice for Franklin County, Greenfield Town Council representatives, and members of the public.	Greenfield
January 6, 2019	Franklin County Comprehensive Economic Development Strategy Meeting	CEDS Committee Members (Each town in Franklin County has a town-appointed representative on the Committee. Also serving on the Committee are appointees of the FRCOG Executive Committee, the Franklin County Selectmen's Association, and North Quabbin Chambers of Commerce, the Franklin County Community Development Corporation (CDC), and the FRPB.	Greenfield
January 8, 2019	RTP Public Forum	Attendees included: municipal representatives.	Erving
January 9, 2019	RTP Public Forum	Attendees included: municipal representatives, FRTA, LifePath, Senator Comerford's Office, and MassHire.	Greenfield

Date	Type of Meeting	Audience	Location
January 10, 2019	Franklin County Immigration Service Providers	Attendees included: representatives from social service organizations in the greater Franklin County region.	Turners Falls
January 16, 2019	RTP Public Forum	Attendees included: FRTA and PVTA.	Sunderland
January 22, 2019	TPO Meeting	Attendees included: municipal representatives, MassDOT representatives, FRTA, FRPB, FHWA, Franklin County Chamber of Commerce, and Orange Revitalization Partnership.	Greenfield
January 24, 2019	Franklin Regional Planning Board	Attendees included: Franklin Regional Planning Board members, local officials, and members of the general public	Greenfield
February 4, 2019	Transit Equity Day	Attendees included: State Senator Jo Comerford, State Rep. Paul Mark's Office, Greening Greenfield, Franklin County Community Co-Op, Just Roots Community Farm, City of Greenfield, Transportation Justice for Franklin County, and the FRTA	Greenfield
February 6, 2019	Mass in Motion Advisory Committee	Attendees included: YMCA, Community Health Center of Franklin County, City of Greenfield, FC Technical School, Montague Parks and Recreation, Greenfield Recreation, Communities that Care Coalition, UMass Amherst College of Nursing, FC CDC, Community Action, Center for Self Reliance	Greenfield
March 20, 2019	Western Massachusetts Historical Commission Coalition	Attendees included representatives of municipal Historic Commissions in the region.	Greenfield
March 22, 2019	Franklin County Chamber of Commerce	Attendees included: Chamber of Commerce members from all over Franklin County	Greenfield
March 28, 2019	TriState Transportation Meeting	Attendees included: FRCOG, Southwest Regional Planning Commission (NH), and Windham Regional Commission (VT)	Keene, NH
May 14, 2019	FRCOG Bike Breakfast	Attendees included: local bicyclists and transit riders.	Greenfield
July 16, 2019	RTP Public Hearing	Attendees included: FRTA, Greenfield Planning Board, LifePath, GCC, FRCOG Executive Committee, Greenfield Farmer's Market, and residents	Greenfield
July 16, 2019	RTP Public Hearing	Attendees included: Western Mass Food Bank, FC Transportation for Justice, Colrain Board of Selectmen	Greenfield

3

Goals and Performance Measures

2020 Regional Transportation Plan

3 Transportation Planning Goals and Performance Measures

The federal transportation legislation, MAP-21, created the requirement that states and metropolitan planning organizations (MPOs) establish and regularly monitor a performance and outcome-based program. The FAST Act continues this requirement that there be performance goals in seven topic areas, and states and MPOs are required to then establish coordinated performance measures that track their progress in these goal areas with tangible targets. These goal areas can be viewed in Table 3-1.

To fulfill the FAST Act's requirement, MassDOT has been establishing statewide performance measures as the federal government releases the final rules for each performance measure. These statewide performance measures are applicable to the MPOs and Transportation Planning Organizations (TPOs) as well. The Franklin County Transportation Planning Organization (FCTPO) has adopted each of the MassDOT final performance measures as its own for the topic areas available to date. These include Safety (PM1), Bridge (PM2), and System Performance Measures (PM3).

Table 3-1: FAST Act Goal Areas

FAST Act Goal Area
Safety
Infrastructure condition
Congestion reduction
System reliability
Freight movement & economic vitality
Environmental sustainability
Reduced project delivery delays

In addition to these formal statewide performance measures, the FCTPO has also created additional regionally focused measures that take into consideration Franklin County's unique rural character. These regional measures have been identified and validated through extensive public outreach. Both of these types of performance measures are described in more detail further in this chapter.

Implementing Performance Measures and Goals

The recommendations found throughout this Regional Transportation Plan (RTP) all work toward the realization of the goals and performance measures outlined in this chapter. They will be implemented through coordinated regional planning and, in part, specifically through the FCTPO Transportation Improvement Program (TIP) and its Unified Planning Work Program (UPWP). These shorter-term planning documents reflect the priorities of the RTP, while guiding how and when projects should be implemented within the financial constraints of anticipated Federal and State Funding. While the FRCOG will continue to strive to meet the goals and performance measures, it should be noted that the implementation of some of the goals are out of its control and depend on federal and state funding and policy decisions.

The Transportation Improvement Program (TIP) is a prioritized, four-year program for the implementation of transportation improvement projects in Franklin County that receive federal funds. It is updated annually and is adjusted to the changing fiscal environment, but always reflects the RTP's goals and priorities. Each potential project considered for inclusion in the TIP is scored using the Transportation Evaluation Criteria (TEC). The TEC rates projects in six criteria categories on a scale of -3 to +3, with a total possible score of -18 to +18. The categories include: Condition, Mobility, Safety, Community Effects, Land Use & Economic Development, and Environmental Effects. A project's total score relates to the impact it will have in each of the categories. The TEC score is determined through a cooperative process among FRCOG Transportation Planning staff, MassDOT Office of Transportation Planning, and MassDOT Highway Division District 1 and District 2 staff. The TEC score, along with project readiness, funding availability, and how well it meets the RTP's goals, are considered in the selection of projects for the TIP.

The Unified Planning Work Program (UPWP) is also an annual document that describes the work tasks to be conducted during the year by the transportation planning staff of the FRCOG on behalf of the FCTPO. Like the TIP, the UPWP is based upon the priorities that have been identified in the RTP and works toward implementing those goals.

MassDOT Tracker

As part of the FAST Act's focus on measuring and tracking performance, MassDOT has created an interactive, web-based report card called "Tracker."[1] The Tracker report is a review of MassDOT's progress, designed to track and clarify where goals are or are not being met. Performance is reported by the five MassDOT divisions: Highway, Aeronatics, Registry of Motor Vehicles, Rail and Transit, and the MBTA.

Adopted FAST Act Performance Measures

The following section describes the performance measures required by the FAST Act. These measures were developed by MassDOT and adopted by the FCTPO.

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[1] https://massdottracker.com/

Safety Performance Measures (PM1)

The FCTPO has chosen to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2019. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trend lines for all Federal Highway Administration (FHWA) defined safety measures. For CY 2019 targets, four of the five safety measures—total number of fatalities, rate of fatalities per 100 million vehicle miles traveled, total number of incapacitating injuries, and rate of incapacitating injuries per 100 million VMT—were established by extending their trend lines into the 2015-2019 period. All four of these measures reflect a modest decrease in statewide trends. The fifth safety measure, the total number of combined incapacitating injuries and fatalities for non-motorized modes, is the only safety measure for which the statewide trend line depicts an increase. MassDOT's effort to increase non-motorized mode share throughout the Commonwealth has posed a challenge to simultaneously reducing non-motorized injuries and fatalities. Rather than adopt a target that depicts an increase in the trend line, MassDOT has elected to establish a target of non-motorized fatalities and injuries and for CY 2019 that remains constant from the rolling average for 2012–2016. In recent years, MassDOT and the FCTPO have invested in "complete streets," bicycle and pedestrian infrastructure, intersection and safety improvements in both the Capital Investment Plan (CIP) and Statewide Transportation Improvement Program (STIP) to address increasing mode share and to incorporate safety mitigation elements into projects. Moving forward, FCTPO, alongside MassDOT, is actively seeking to improve data collection and methodology for bicycle and pedestrian VMT counts and to continue analyzing crash clusters and crash counts that include both motorized and non-motorized modes in order to address safety issues at these locations.

In all safety categories, MassDOT has established a long-term target of "Toward Zero Deaths" through MassDOT's Performance Measures Tracker[2] and will be establishing safety targets for the MPO/TPOs to consider for adoption each calendar year. While the MPO/TPOs is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPO/TPOs to adopt MassDOT's annual targets or to establish their own each year.

The safety measures MassDOT has established for CY 2019, and that Franklin TPO has adopted, are as follows:

1) Fatalities: The target number of fatalities for years CY 2019 is 353, down from an average of 364 fatalities for the years 2012–2016.

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[2] https://www.mass.gov/lists/tracker-annual-performance-management-reports

2) Rate of Fatalities per 100 million VMT: The target fatality rate for years CY 2019 is 0.58, down from a 0.61 average for years 2012–2016.

3) Serious Injuries: The target number of incapacitating injuries for CY2019 is 2801, down from the average of 3146 for years 2012–2016.

4) Rate of Incapacitating Injuries per 100 million VMT: The incapacitating injury rate target for CY2019 is 4.37 per year, down from the 5.24 average rate for years 2012–2016.

5) Total Number of Combined Incapacitating Injuries and Fatalities for Non-Motorized Modes: The CY2019 target number of fatalities and incapacitating injuries for non-motorists is 541 per year, the same as the average for years 2012–2016.

Table 3-2. Safety Performance Measures, FCTPO vs. Statewide

Safety Performance Measure	CY2019 Target	Statewide Average, 2012-2016	Franklin County Average, 2012-2016
Number of Fatalities	353	364	6.6
Fatalities per 100 million VMT	0.58	0.61	0.53
Number of Serious Injuries	2,801	3,146	304
Serious Injuries per 100 million VMT	4.37	5.24	24.5
Number of Serious Injuries + Fatalities, Non-motorized Modes	541	541	24

Bridge & Pavement Performance Measures (PM2)

The FCTPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPO/TPOs either adopting the statewide target or establishing their own by November 2018. In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. Two-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance measures are tracked in greater detail in MassDOT's Transportation Asset Management Plan (TAMP), which is due to be finalized in July 2019.

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures measure the percentage of deck area, rather than the total number of bridges.

Targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2020), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

Table 3-2: Bridge and Pavement Performance Measure Data

Performance Measure	Current (2017)	2-year target (2020)	4-year target (2022)
Bridges in good condition	15.22%	15%	16%
Bridges in poor condition	12.37%	13%	12%
Interstate Pavement in good condition	74.2%	70%	70%
Interstate Pavement in poor condition	0.1%	4%	4%
Non-Interstate Pavement in good condition	32.9%	30%	30%
Non-Interstate Pavement in poor condition	31.4%	30%	30%

Reliability, Congestion, & Emissions Performance Measures (PM3)

FCTPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPO/TPOs either adopting the statewide target or establishing their own by November 2018.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate National Highway System (NHS) as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For

LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure. As this data set has but one year of consistent data, FHWA guidance has been to set conservative targets and to adjust future targets once more data becomes available. To that end, MassDOT's reliability performance targets are set to remain the same.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through Congestion Mitigation Air Quality (CMAQ) funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

Table 3-3: Reliability, Congestion, & Emissions Performance Measure Data

Measure	**Current (2017)**	**2-year (2020)**	**4-year (2022)**
Non-Interstate LOTTR	80%	80%	80%
Interstate LOTTR	68%	68%	68%
TTTR	1.85	1.85	1.85
PHED (Boston UZA)	18.31	18.31	18.31
% non-SOV (Boston UZA)	33.6% (2016)	34.82%	35.46%
Emissions Reductions	Baseline (FFY 14–17)	1,622 CO 497.9 Ozone	TBD CO (Springfield) 1.1 Ozone

Transit Asset Management (TAM) Plan

The FAST Act requires that all public transit providers monitor and manage their public transportation assets to improve safety, increase reliability and performance, and to establish performance measures. To accomplish this, transit providers of a certain size must create a Transit Asset Management (TAM) Plan and update it every four years. The FRTA falls into the Tier II level of reporting, due to the size of its transit fleet. In Massachusetts, regional transit authorities have the option of accepting a MassDOT-created TAM plan as their own or creating their own. The FRTA adopted MassDOT's plan, which was created in December 2018 and provides an inventory of each participating public transportation provider's assets, details their condition, and outlines a project-based prioritization of investments with the goal of achieving and maintain a state of good repair of its assets. The following Table 3-4 describes the 2019 and 2020 targets for the FRTA regarding the maintenance of its assets.

Table 3-4: Transit Asset Management Plan Performance Measure

Asset Category – Performance Measure	FTA Asset Class	2019 Target	2020 Target
Revenue Vehicles			
Age - % of revenue vehicles within a particular class that have met or exceeded their Useful Life Benchmark (ULB)	BU – Bus	10%	10%
	Cu – Cutaway	35%	30%
	MB – Minibus	10%	10%
	VN - Van	10%	10%
Equipment			
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue / Service Automobiles	100%	67%
	Trucks & Other Rubber Tire Vehicles	50%	25%
Facilities			
Condition - % of facilities with a condition rating below 3.0 on the FTA Term Scale	Administrative / Passenger Facility	0%	0%
	Maintenance Facility	100%	100%

Regional Performance Measures

The following section describes the performance measures developed by the FCTPO to reflect the regional vision that was presented in Chapter 1. Each performance measure seeks to evaluate the progress the region is making towards achieving that vision and its associated goals and objectives. When applicable, a data source that will be used to assess progress for each objective is also listed.

❖ Goal 1: Maintain infrastructure to facilitate the mobility of people and goods traveling to, from, and through Franklin County.

Objective A) Maintain condition of on and off-system bridges.

Measure: See FAST Act Performance Measure 2.

Target: See FAST Act Performance Measure 2.

Objective B) Maintain the condition of the region's roadways.

Measure: See FAST Act Performance Measure 2.

Target: See FAST Act Performance Measure 2.

Objective C) Maintain the region's transit fleet.

Measure: See Transit Asset Management Plan Performance Measures.

Target: See Transit Asset Management Plan Performance Measures.

Discussion: There are many projects currently on the TIP or under design that will be help achieve Goal 1. In fact, almost half of the spending for the next twenty years for the Franklin Region is projected to be spent on the repair and replacement of bridges. An additional 20% of the region's spending will be programmed for road reconstruction and resurfacing (see Chapter 16: Financial Constraint).

❖ Goal 2: Improve safety and security of transportation network.

Objective A) Reduce the number of fatal and injury crashes on roadways.

Measure: See FAST Act Performance Measure 1.

Target: See FAST Act Performance Measure 1.

Objective B) Expand emergency preparedness and training.

Measure: Identify transportation infrastructure vulnerabilities and plan for natural disasters and other emergencies.

Target: Continue involvement with the Regional Emergency Preparedness Committee and the Western Region Homeland Security Advisory Council.

Data Source: Regional Emergency Preparedness Committee and the Western Region Homeland Security Advisory Council.

Objective C) Identify dangerous locations for pedestrians and bicyclists and improve the safety for all users.

Measure: Identify potentially dangerous locations and conduct complete streets assessments with safety recommendations.

Target: Conduct 10 complete street site assessments with recommendations by 2030.

Data Source: FRCOG and municipal planning staff.

Discussion: The FRCOG just completed a Vision Zero/Distracted Driving Report, which recommended ways to improve safety by reducing distracted driving. The FRCOG is also currently working with the Western Region Homeland Security Advisory Council to map closed bridges to better understand evacuation routes. The FRCOG continues to work with local towns to become certified Complete Streets Communities, identify projects, and implement projects through the Complete Street grant program.

❖ Goal 3: Increase transportation options and reduce vehicle emissions.

Objective A) Expand the transit system.

Measure: Increase the frequency of fixed route service, expand the hours of service, and increase the number of fixed transit routes.

Target: (1) Increase the frequency of routes to at least average 30 minute headways on routes in Greenfield and Montague; 60 minute headways on routes connecting to Orange, Northampton, and Amherst/Sunderland; 120 minute headways on routes connecting to Charlemont.
(2) Add weekend and evening service.
(3) Add routes to currently unserved areas.
Data Source: FRTA staff

Objective B) Expand bicycling and walking network.
Measure: Increase the number and safety of bicycling and walking facilities.
Target: Increase share of walkers and bicyclists to 8% in 10 years.
Data Source: U.S. Census Bureau

Objective C) Provide transportation alternatives.
Measure: Increase the use of the park and rides throughout the region and promote the use of ridesharing.
Target: (1) Increase the utilization rates of the park and ride lots by 50% over 10 years.
(2) Increase the share of workers commuting by carpool to 10% in 10 years.
(3) Increase the number of Transportation Network Company (TNC) vehicles by 100% in 5 years.
Data Source: FRCOG Park and Ride Surveys and MassDOT DPU Rideshare Report

Objective D) Increase passenger rail options.
Measure: Establish an expanded passenger rail system between Greenfield and Springfield and advocate for east-west passenger rail service.
Target: (1) Establish a passenger rail system between Greenfield and Springfield that runs at least 3 round trips per day.
(2) Complete a feasibility study for east-west passenger rail service between Boston and Greenfield.

Discussion: There are several projects under design in the Franklin Region that will increase the safety of bicyclists and pedestrians. For example, the Schell Bridge will be replaced with a bicycle/pedestrian bridge in Northfield (TIP Year 2021). Bicycle shoulders will be installed in Buckland connecting Mohawk Trail Regional High School to Shelburne Falls (TIP Year 2022). In addition, the FRCOG is planning to install way-finding signs on the remaining portions of the Franklin County Bikeway.

❖ Goal 4: Promote economic development of the region while maintaining its rural character.

Objective A) Encourage regional tourism.

Measure: (1) Promote motorist and bicycling touring in the region.
(2) Preserve natural, scenic, cultural, and historic resources.
(3) Increase access to regional recreational resources.

Target: (1) Launch a bicycle promotional campaign for Franklin County in the next 5 years.
(2) Preserve natural, scenic, cultural, & historically significant land along the region’s byways.
(3) Identify gaps in access to important regional recreational resources and recommend corrective measures.

Data Source: FRCOG staff

Objective B) Ensure that freight movement is efficient and effective.

Measure: Improve safety and decrease delay along freight routes.

Target: Will use forthcoming FAST Act Performance Measure 5.

Objective C) Improve transportation alternatives to advance workforce development in the region.

Measure: Increase the availability of rideshare in the region and create a micro-transit service for the region.

Target: (1) Increase the availability of rideshare vehicles by 100% in the region in 5 years;
(2) Creation of a micro-transit service for the region.

Data Source: FRCOG and MassDOT DPU Rideshare Report

Discussion: The FRCOG will be conducting planning in its FY2020 Unified Planning Work Program (UPWP) to increase regional tourism for economic development and recreation. The FRCOG is also planning to work with regional social service providers to create a subsidized rideshare program for their clients. In addition, the FRTA has just received a grant to begin a pilot micro-transit service.

- **Goal 5: Promote sustainable transportation, reduce greenhouse gas emissions, and prepare for climate change.**

Objective A) Ensure roadways accommodate all non-motorist users.

Measure: Promote adoption and implementation of Complete Streets policies.
Target: A minimum of 20% of Franklin County towns have adopted Complete Streets policies over next 5 years.
Data Source: FRCOG staff

Objective B) Improve transit system.

Measure: Increase the frequency of fixed route services, expand the hours of service, and increase the number of fixed transit routes.
Target: See Goal 3, Objective A

Objective C) Minimize potential negative impacts on transportation infrastructure from climate change.

Measure: Identify vulnerable roadways/culverts and other transportation infrastructure susceptible to climate change.
Target: Conduct a rolling assessment of vulnerability every five years in Franklin County towns.
Data Source: FRCOG staff

Discussion: The FRCOG will continue to advocate for additional transit funding and innovative ways to address the lack of transit services in the region. Using FY2020 UPWP funds, the FRCOG will continue assessing municipal culverts for vulnerability. Municipalities with identified vulnerable culverts can then apply for funding for replacement either through grant programs, Chapter 90, or the TIP.

4

Regional Demographic & Economic Profile

2020 Regional Transportation Plan

4 Regional Demographic and Economic Profile

Understanding Franklin County's current and future demographic, socioeconomic, and land use patterns are necessary to effectively plan for the region's transportation needs. Chapter 4 examines in detail the current population and economic conditions of the county in order to determine transportation issues that should be addressed. Chapter 4 also looks to the future and examines projected population and job growth with the intent of anticipating future transportation needs.

Franklin County is the most rural county in Massachusetts. It is located in the northernmost portion of the Connecticut River Valley of western Massachusetts. Franklin County borders Vermont and New Hampshire and the Massachusetts counties of Berkshire, Hampshire, and Worcester.

Franklin County has a population of 70,926[1] and a population density of 98 people per square mile in its 725 square mile area. The majority of the twenty-six towns in the county are very small – averaging approximately 1,400 residents. The largest municipality, and only city, is Greenfield with a population of 17,474 people. The smallest populated municipality is the Monroe with a population of 86. Ninety percent of the housing stock in Franklin County is occupied, of which 70% is in the form of single-family homes. The landscape in Franklin County is predominately open space, forest, and farmland. The soils in the Connecticut River Valley are ideal for agricultural uses, and consequently, the region has a rich agricultural history.

Regional Demographics

Population

To better assess the transportation needs of the region, it is necessary to understand how the population in Franklin County is changing. Between 1970[2] and 2000, the county's population grew by 21%, an increase of 12,300 people. Much of this growth took place during the 1970's and 1980's. Following the trend of slower growth that began in the

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[1] Unless otherwise noted, all socio-economic demographic data is from the U.S. Census Bureau, 2017 American Community Survey, Five-Year (2013-2017) Estimates Program.

[2] U.S. Census Bureau, total populations from decennial Census surveys.

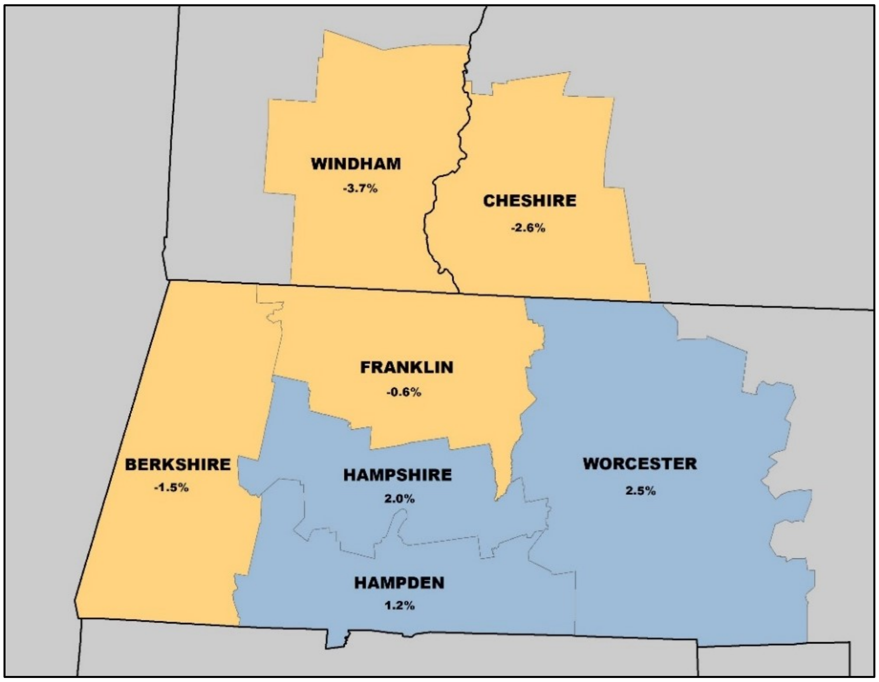
1990’s, the county’s population slightly declined between 2000 and 2010, with a population loss of 163 (a decline rate of -0.2%). Table 4-1 illustrates the estimated population change in Franklin County and surrounding counties in this decade. Franklin County and the counties to the west and north have lost population, with counties to the south and east moderately gaining population.

Table 4-1: Total Population for Franklin County and Surrounding Counties, 2010 to 2017

Geography	2010 Total Population	2017 Population Estimate	2010-2017	
			Change	Percent Change
Franklin County, MA	71,372	70,926	-446	-0.6%
Berkshire County, MA	131,219	127,751	-3,468	-2.6%
Hampden County, MA	463,490	469,188	5,698	1.2%
Hampshire County, MA	158,080	161,197	3,117	2.0%
Worcester County, MA	798,552	818,249	19,697	2.5%
Cheshire County, NH	77,117	75,960	-1,157	-1.5%
Windham County, VT	44,513	42,869	-1,644	-3.7%
Massachusetts	6,547,629	6,789,319	241,690	3.7%

Sources: U.S. Census Bureau - 2010 Census of Population & Housing, and 2017 American Community Survey, Five-Year Estimates.

Map 4-1: Population Change for Franklin County and Surrounding Counties, 2010 to 2017



The population growth that occurred between 2010 and 2017 took place in towns scattered throughout Franklin County without a very clear geographic pattern. The top five towns which experienced the most growth are: Leverett, Gill, Hawley, Heath and Bernardston. Two of these towns are among the lowest populated in western Franklin County and have under 1,000 people. The other towns are either in the southeastern quadrant of the region or have easy access to I-91. The majority of towns that lost population during this time period are located in west County.

Age Distribution of the Population

For transportation planning, it is important to know not only the size of a region's population, but also its composition by age group and how that may change over time. As people age, their use of the transportation network tends to change. For example, the elderly are less likely to drive by themselves and are more likely to use public transit or find other alternatives. In addition, the number of adult workers in a region affects peak traffic volumes as they commute to their workplaces. Like much of the nation, Franklin County is getting older as the "Baby Boomer" generation ages. Half (51%) of the Franklin County population is currently aged 45 and older. Of that age group, nearly a third (32%) is aged 45 to 54 years old, and 19% is aged 65 years and older.

The region is expected to see a significant increase in the number of elderly residents over time. The older "Baby Boomer" generation (born 1946 to 1964) has begun reaching their early 70s and will reach 75 years old in 2021. Studies have shown that nationally, over 40% of people age 75 and above are either non-drivers or have limited their driving.[3] As a result, it will be important to provide transportation services, including public transit and paratransit/van services for Franklin County's expanding elderly population.

Other age groups of interest for transportation planning are 25 to 44 years old and 45 to 65 years old. These age groups comprise the bulk of the workforce and typically make their trips to and from work during the peak morning and evening commute hours. In 2017, 86% of Franklin County residents are estimated to commute to work by car (with 77% driving alone and 9% carpooling), 4% walked, 2% took public transportation, and 1% took other means. Traffic congestion during commuting hours can be addressed in part through provision and promotion of healthy transportation options to single occupancy vehicle travel for work commutes. Options could include the use of park and ride lots for carpooling or transit, ridesharing programs, and bicycle and pedestrian facilities. Congestion can also be influenced through flexible work schedules and through the provision of telecommunications infrastructure that helps support residents who work from their homes. In 2017, approximately 7% of Franklin County residents worked at home.

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[3] Straight, A., *Community Transportation Survey*, America Association of Retired People, 1997.

Ethnic and Racial Diversity

Franklin County is the least racially and ethnically diverse county in the Commonwealth. As of 2017, the U.S. Census Bureau estimated that 94% of the population in the county is White, with 91% of the population being White and not Hispanic or Latino. This is compared to a Massachusetts percentage of 79% that is White, and 73% being White and not Hispanic or Latino. The next largest populations by a single race are Asian (1.6%) and Black or African American (1.4%), and a very small percentage (0.2%) that is Native American/Alaska Native. The population of people of two or more races is 2.5% in Franklin County. The population of Hispanic or Latino ethnicity is the largest minority in Franklin County at 3.8%.[4] Over the years, the Hispanic and Latino population has increased from 2% of the total population in 2000, to 3.2% in 2010, and now 3.8%.

Population Projections to 2040

The demographic data presented shows that the Franklin County population size is relatively stable, is gradually getting older, and it's racial and ethnic composition is only slightly changing. It is also important to look ahead and forecast how the population may change in the future in order to meet the shifting demands of the region. As part of this effort, MassDOT, in partnership with the UMass Donahue Institute, has developed socio-economic forecasts for all regions of the Commonwealth, including Franklin County, to the year 2040. Those forecasts have also been applied to the twenty-six municipalities in the county.[5] In general, the MassDOT forecasts show that the next twenty-five years will be a period of moderate growth for the Commonwealth as a whole. Massachusetts is projected to grow at 12.7% between 2010 and 2040 with some places increasing more rapidly and some losing population. During this same time, Franklin County is projected to lose 2.7% of its total population, decreasing to 69,477 people by the year 2040. The total population loss for the county over this thirty year timeframe is approximately 1,895 people. This population loss can largely be attributed to the aging of the large Baby Boomer group and fewer births to replace their loss. There is also very little immigration projected to occur in Franklin County to make up for this population loss, which is the driving force of much of the state's growth. Figure 4-1 shows the projected change in the Franklin County population in relation to the county's past population growth since 1980. The projected population loss emphasizes the RTP goal of continued maintenance of the transportation system rather than expanding it.

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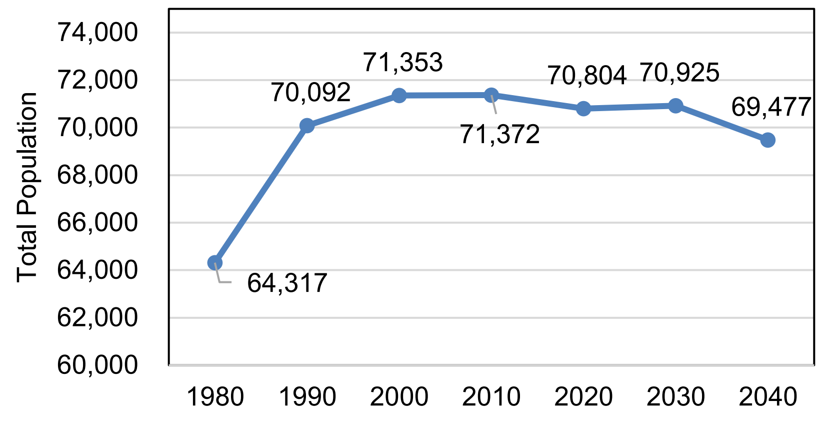
[4] According to the U.S. Census Bureau definition, Hispanic or Latino origin is an ethnicity that can be from any race or races.

[5] The FRCOG provided input based on local conditions that the projection methodology for municipal forecasts may not take into consideration, as prepared by MassDOT with the UMass Donahue Institute (UMDI).

Figure 4-1: Past and Projected Franklin County Population, 1980 to 2040



Source: U.S. Census - Decennial Census of 1980, 1990, 2000, 2010, MassDOT and UMDI Population Projections.

Income and Employment Profile

Income and Wealth

The income levels of a community often indicate the potential transportation needs of a region. Areas with lower-income populations tend to benefit more from the existence of public transportation because the costs associated with using public transportation are less than the costs of owning and maintaining a car. In addition, low income households often do not have the resources needed to cope with rising fuel costs, such as moving closer to work or purchasing a more fuel-efficient vehicle.[6]

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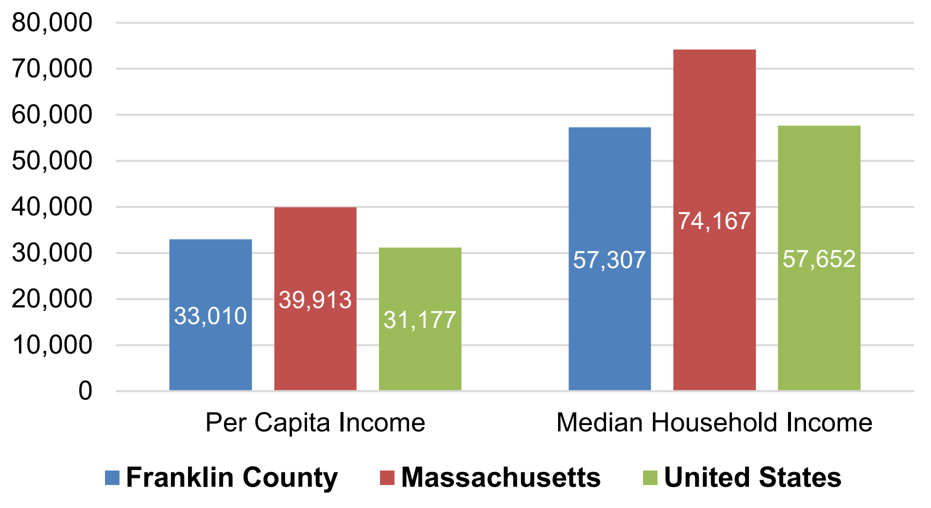
[6] Cooper, Mark N. "Rising Energy Prices Strain Household Budgets and the Economy For Most Americans," *Consumers Union*. September 2004.

Figure 4-2: Per Capita Income and Median Household Income



Source: U.S. Census Bureau, 2017 American Community Survey Five-Year Estimates.

In general, U.S. Census data shows that Franklin County's incomes are much lower than Massachusetts as a whole. In 2017, the county's median household income was $57,307, which was much less (23% less) than Massachusetts's median household income of $74,167. Another income indicator is per capita income. By this measure, Franklin County's income is still 17% lower than the Commonwealth's. Franklin County's per capita income is $33,010, compared to the Massachusetts per capita income of $39,913.

The lower per capita and median income figures for Franklin County in part reflect the lower average salaries and lower costs of living in western Massachusetts compared to Boston and other eastern Massachusetts communities. However, these statistics also reflect economic challenges within the region. These challenges include the loss of a historic manufacturing employment base. As numerous jobs have left Franklin County, they have often not been replaced by comparable employment opportunities with good wages and benefits, which have resulted in lower incomes in the region.

In 2017, the poverty rate for Franklin County was 10.9%, which was slightly lower than the state rate of 11.1%. The areas experiencing higher poverty rates than the state average include several of the downtowns and village centers that had once been traditional hubs of manufacturing employment, such as Montague (15.2%) and Greenfield (13.2%), Other areas with higher poverty rates include the small towns located farther from major employment centers, such as the towns of Wendell (17.6%), Charlemont (16.1%), Heath

(15.2%), and Colrain (13.5%), and communities with a higher concentration college students, such as Sunderland (16.4%) and Shutesbury (11.3%).

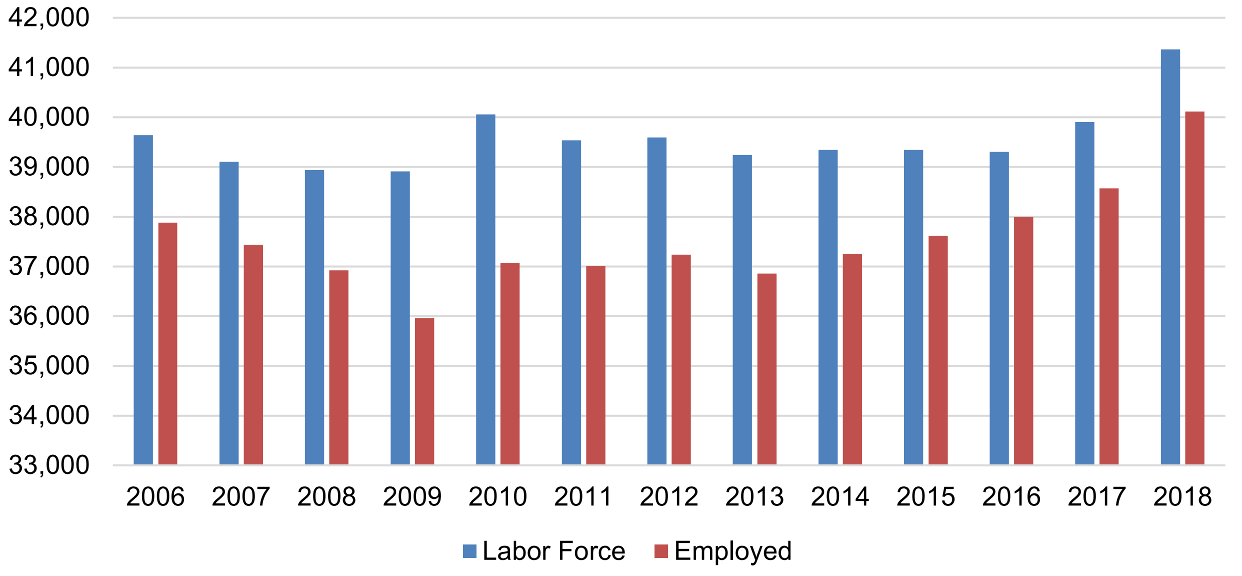
Employment

Regional employment trends reflect both the condition of the national and regional economy and changes in the region's population. When employment opportunities are created in a region, people are likely to move there. Similarly, when jobs in a region are lost, there is typically an out-migration of residents. To understand long-range transportation trends and commuting patterns, it is important to understand the size of an area's labor force and its employment level. An area's labor force is defined as the number of residents age 16 or over who are currently employed or who are actively searching for work. Persons not actively seeking employment, such as enrolled students, retirees or stay-at-home parents, are excluded from the labor force figures. The unemployment rate describes the percentage of people in the labor force who are not employed (part-time or full-time) during a certain period and who are actively seeking work.

Labor Force

According to the Massachusetts Executive Office of Labor and Workforce Development (EOLWD), the size of Franklin County's labor force has fluctuated over the past decade. The labor force grew throughout the early 2000s and then began to decrease starting in 2007 due to the Great Recession. By 2010 and the introduction of American Recovery and Reinvestment Act programs policies to catalyze the economy, the size of the Franklin County labor force grew to greater than pre-recession levels and the number of employed increased greatly. Starting in 2014, the county's level of total employment began to grow consistently from year to year to the highest employment level in twenty years. Figure 4-2 shows the changes in the region's labor force and employment levels from 2006 to 2018.

Figure 4-3: Franklin County Labor Force and Employed Persons, 2006-2018



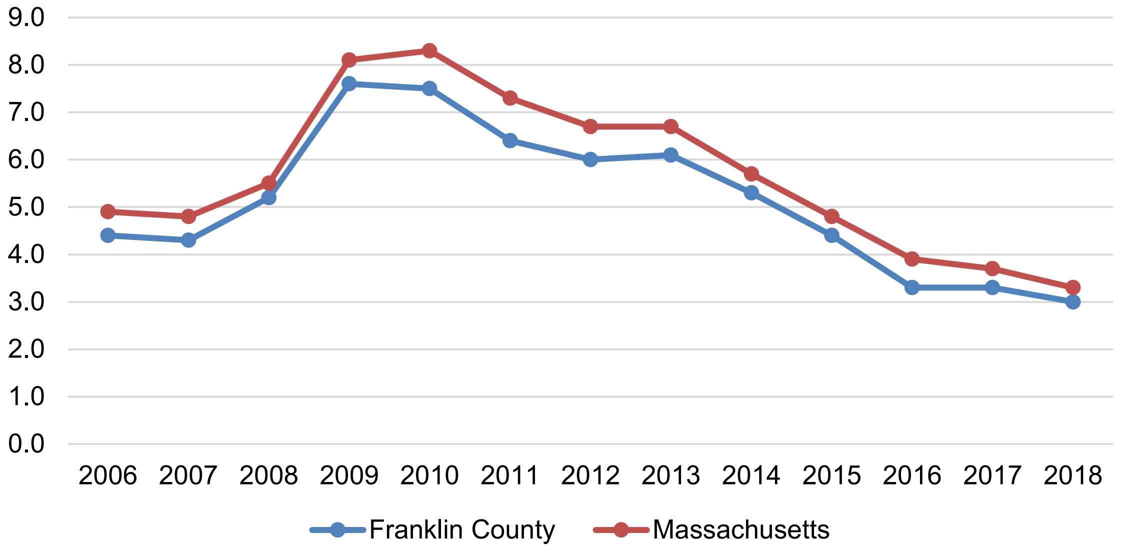
Source: MA Executive Office of Labor and Workforce Development, Local Area Unemployment Statistics.

Predictably, the largest town labor forces in Franklin County are located in the most populated communities. Greenfield contains 25% of the county's population and accounts for 24% of the labor force for Franklin County. Together, the four largest towns in the region (Greenfield, Montague, Orange, and Deerfield) comprise 54% of Franklin County's total population and 51% of the county's labor force.

In 2018, Franklin County's unemployment rate of 3.0% was lower than the State (3.3%). Among the individual towns, the unemployment rate can vary greatly. Several towns have consistently experienced higher rates of unemployment than the State rate. In 2018, seven towns had rates above the State rate. Typically, towns with the highest unemployment rates fall into two types of categories: 1) isolated hill towns and 2) downtowns and village centers that had been traditional hubs of manufacturing employment. The towns of Monroe (3.8%), Charlemont (3.6%), Rowe (3.6%) and Wendell (3.5%) have higher unemployment rates than other Franklin County towns and the state, and are located in the more rural areas of the county. The population centers of Orange (4.6%) and Montague (3.8%) are also sites of higher unemployment. Erving and Bernardston also had unemployment rates above (3.4%) or at the state rate (3.3%) respectively. Another factor contributing to a town's higher unemployment rate would be the closure of a nearby major employer, such facility closures are described in the section on major employers.

It should be noted that unemployment figures do not distinguish between full or part-time employment and obscure the fact that underemployment is a significant problem for the region. Figure 4-3 shows the change in unemployment in Franklin County between the years 2006 to 2018, which includes the period of the Great Recession.

Figure 4-4: Unemployment Rates at the Franklin County and State Levels, 2006 to 2018



Source: MA Executive Office of Labor and Workforce Development, Local Area Unemployment Statistics.

Although the unemployed are not commuting to jobs, they are often traveling for employment interviews and training. Unemployed residents can greatly benefit from support services, including transit services, which can help them access, obtain, and keep good jobs. Without adequate public transportation options, it can be difficult for potential workers who do not have the use of a vehicle to access and maintain quality employment. Assisting low-income residents with transportation to work, training, and educational opportunities that can improve their employment options, is a major focus of the transit network in Franklin County and of proposed transit service improvements. Chapter 9, “Transit and Paratransit Services,” describes in detail the transit network and its various existing services and recommended additions.

The U.S. Census Bureau collects data on the “class of workers”, which describes the sector a resident is employed in, such as private business, non-profit, government, self-employed, and unpaid family workers. The percentage of workers who are self-employed in Franklin County, either in an incorporated or unincorporated business, is higher in Franklin County

(12%) than the State (9%). According to 2017 data, there are 4,653 workers who are self-employed.

Major Employers

Largest Employers in Region

- Yankee Candle Company, Deerfield & Whately
- Pelican Products, Deerfield
- Seaman Warehouse, Orange
- Baystate Franklin Medical Center, Greenfield
- Deerfield Academy, Deerfield
- Northfield Mt. Hermon School, Gill
- Walmart Supercenter, Orange

There are 38 employers in the region that are identified as having at least 100 employees. These employers include private businesses, non-profit organizations and governmental entities (such as public schools). Most of the major employers are located in the county's primary employment centers, including Deerfield, Greenfield, Orange, and Whately. Yankee Candle Company, which has its headquarters and a large retail store in South Deerfield and manufacturing facility in Whately, is the largest employer in Franklin County with more than 1,000 employees. The next largest employers are Pelican Products Inc. in South Deerfield, and Seaman Warehouse in Orange, with over 500 employees each. Employers with 250 employees include the region's largest medical facilities, Baystate Franklin Medical Center in Greenfield and Farren Care Center in Montague, and private educational institutions, Deerfield Academy in Deerfield and Northfield Mt. Hermon School in Gill. The other employer identified as having 250 or more employees is the Walmart Supercenter in Orange.

The U.S. Census Bureau offers data on commuting patterns of workers through the Longitudinal Employer-Household Dynamics program. In 2015, it estimated that 40.9% of the 33,615 residents of Franklin County who were employed, worked at jobs located in Franklin County. Of the workers who were employed outside of Franklin County, 27% of them commuted to jobs in Hampshire County, with the next most frequent destinations being Hampden County (18%) and Worcester County (16%). The largest single employer of Franklin County residents is the University of Massachusetts at Amherst. The most recent data available shows that in 2002, UMass Amherst estimated that it employed 1,250 Franklin County residents (not including student employees). UMass Amherst has a total of approximately 5,300 non-student staff and faculty members.

The closure or downsizing of major employers in the region has had a variety of impacts on the regional economy and on residents. These events have had a negative impact on employment levels and incomes, and at times have contributed to the out-migration of the traditional working age populations.

Just to the north of Franklin County, the Vermont Yankee Nuclear Power Station (VY) in Vernon, VT, ceased all operations at the end of December, 2014. At the time operations ceased, the plant had 550 employees, of which 101 (or 18%) lived in Franklin County.[7] These employees, many of whom had specialized skills to operate and manage the power plant, had relatively high wage and salary levels – much higher than the average regional income. Job levels at the plant have steadily declined since operations have ceased. The transfer of spent fuel into dry cask storage in 2018 was done by a contracting firm from outside the region. The current staffing level is approximately 60 employees, including security personnel. Once the decommissioning process begins, about 100 to 150 specialized workers from outside the region will conduct the work.[8] Once decommissioning is complete, approximately 10 to 15 security personnel will remain at the site.

The closure of the VY was the largest employment loss in recent years, however, other facilities closures have also impacted the region. The closure of two manufacturing companies also created job losses. The Rodney Hunt Company located in Downtown Orange closed in 2016 which resulted in a loss of over 200 jobs, and the Turners Falls Paper Company in located in Downtown Turners Falls closed in 2017 which resulted in the loss of approximately 60 jobs. In spring 2019, the Channing Bete Company, a publications company, announced it would close by June 2019, resulting in the loss of 105 jobs. Each of these closures leaves behind facilities located in major employment centers that could be reused by other businesses.

Tourism in Franklin County

One growing sector of the region's economy is the tourism sector. Many of the communities in Franklin County view tourism as a way to enhance their local economies and support local artisans and craftspeople, and also to promote and protect the region's natural, cultural, and historic resources, including farmland and forestland. It is identified as a key economic cluster in region's Comprehensive Economic Development Strategy (CEDS) Plan. More information on tourism in the region can be found in Chapter 11: Scenic Byways and Tourism.

Telecommunications Infrastructure Improvements

An important factor in the region's economy is the availability and efficiency of the telecommunications infrastructure. Telecommunications infrastructure includes systems that provide telephone, television and broadband internet services. In many parts of Franklin County, the services available through the current system are inadequate for present day needs. Issues of reliability, affordability, and access are significant obstacles for small and large businesses, educational and health care institutions, and households. Fortunately, efforts led by the State and in partnership with local communities are underway and changing the telecom landscape in the region.

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[7] "Economic Impacts of Vermont Yankee Closure," UMass Donahue Institute. December 2014.

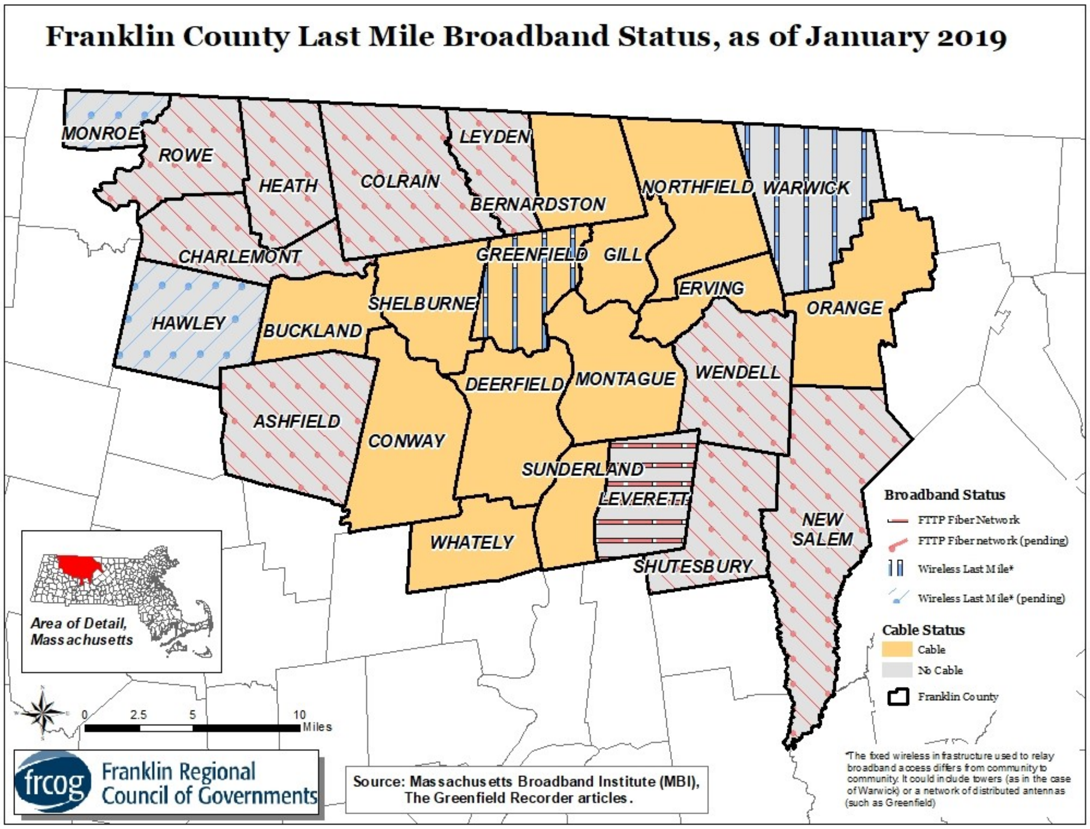
[8] The Brattleboro Reformer newspaper, Susan Smallheer, January 11, 2019.

In 2014, an open access, fiber-optic, “middle mile” network called *MassBroadband 123* was completed by the Massachusetts Broadband Institute using $90 million in state and federal funds. The network connects cities/towns in western and north-central Massachusetts to the global telecom network. The first segment of this middle mile network was constructed along the I-91 corridor and in coordination with MassDOT.

Multiple internet service providers (ISPs) can use this network to offer services to Community Anchor Institutions (CAIs) and other entities with a direct connection to the network. The network’s capacity allows for very high speed transmissions and the use of next-generation applications. It is also the backbone infrastructure used to connect the “last mile” (the local system that connects subscriber homes and businesses) to the global network. Half the towns in Franklin County are unserved by cable television broadband systems. Currently, two of these towns (Leverett and Warwick) have alternative last mile broadband systems in place.

Through the MA Executive Office of Housing & Economic Development’s Last Mile Infrastructure Grant Program, over $50 million of state funds have been committed for last mile infrastructure investment in unserved and underserved communities. Through this program, five towns in Franklin County (Buckland, Conway, Montague, Northfield, and Shelburne) had the existing cable systems expanded to reach 96% of housing units in 2018. Eleven towns have received infrastructure grants, of which nine are for developing fiber-to-the-premise networks, and two are for developing wireless networks. As these networks are completed, improved internet service could attract new residents and employment to Franklin County and promote telecommuting – all of which could affect transportation infrastructure needs.

Map 4-1: Last Mile Broadband Status of Franklin County Towns, January 2019.


Franklin County Last Mile Broadband Status, as of January 2019
MONROE
ROWE
HEATH
COLRAIN
LEYDEN
BERNARDSTON
NORTHFIELD
WARWICK
CHARLEMONT
GREENFIELD
GILL
HAWLEY
BUCKLAND
SHELBURNE
ERVING
ORANGE
DEERFIELD
MONTAGUE
WENDELL
ASHFIELD
CONWAY
SUNDERLAND
LEVERETT
NEW SALEM
WHATELY
SHUTESBURY
Area of Detail, Massachusetts
0
2.5
5
10
Miles
Franklin Regional Council of Governments
frcog
Source: Massachusetts Broadband Institute (MBI), The Greenfield Recorder articles.
Broadband Status
FTTP Fiber Network
FTTP Fiber network (pending)
Wireless Last Mile*
Wireless Last Mile* (pending)
Cable Status
Cable
No Cable
Franklin County
*The fixed wireless infrastructure used to relay broadband access differs from community to community. It could include towers (as in the case of Warwick) or a network of distributed antennas (such as Greenfield)

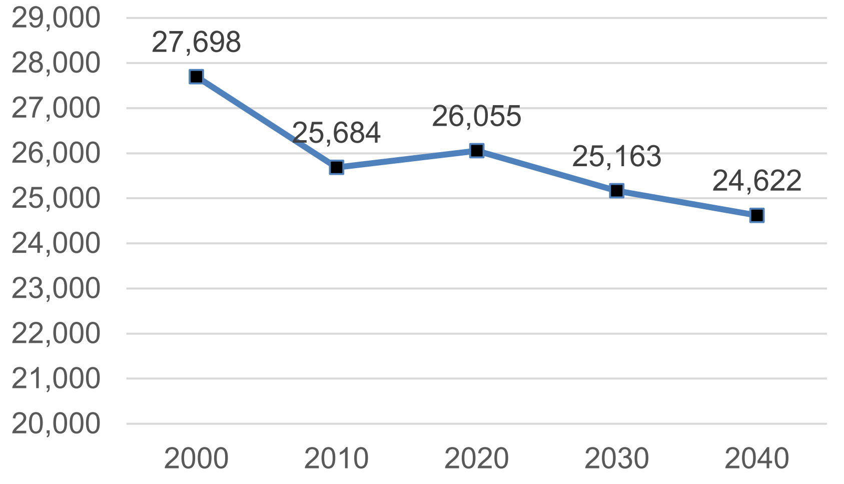
Source: Franklin Regional Council of Governments; Massachusetts Broadband Initiative; and The Greenfield Recorder articles, 2019.

Employment Projections

Employment projections are useful for transportation planning, because they can help estimate future commute travel flows and help assess the need for transportation services and facilities for work-related travel. As with the population forecasts used in this RTP, the employment forecasts were produced by MassDOT, in partnership with the UMass Donahue Institute. The total employment in an area is equal to the number of employed residents in the area, plus the number of non-residents who commute into that area to work. Excluded from the figure are the residents who commute out of the area to work.

MassDOT provided employment forecasts for the regional and municipal level. The municipal level allocations were performed with the assumption that each town's share of employment will remain constant over the next twenty-five years. This is based on the premise that primary employment trends are regional and the employment centers in Franklin County today will generally continue to be the employment centers in the county for the foreseeable future. While this is true, it is also likely that the communities within easy commuting distance to Hampshire County employers will grow over the next twenty-five years and see an increase in their share of the region's employment. From an employment perspective, the most important population changes are those that occur at the regional level. Population changes for individual towns, especially smaller towns, have only a minor impact on employment since many workers commute to jobs outside of their community.

Figure 4-5: Franklin County Estimated and Projected Employment, 2000 to 2040



Source: MA Executive Office of Labor and Workforce Development; MassDOT and UMDI Employment Projections.

As shown in Figure 4-5, the forecasts show that Franklin County's total employment will decline by 4.1% over the next thirty years. The state's employment is projected to grow by 10.1% over the same time frame. Employment in Franklin County as of 2010 was at 25,684 and is projected to slightly increase by 1.4% by 2020 and then lose 1,433 employees by the year 2040.

The forecasts show that overall Franklin County will lose employment by the year 2040. This is largely due to the graying of the region's population as they age out of the workforce. Other regions in the state with similarly aged populations are also expected to have declining employment. They include Berkshire County and Cape Cod. In terms of planning for the transportation of commuters in the region, these forecasts seem to indicate that the current highway infrastructure is sufficient for commuters' needs. The status of the public transit system should be evaluated to ensure that it is serving the workforce efficiently and effectively. In addition, the return of passenger rail to the region should be evaluated as to how it can best serve the area's labor force as it potentially changes to a more telecommuting/long distance employment model.

Transportation Profile

Because of Franklin County's rural character and limited transit services, the county has a high level of private vehicle ownership and most of Franklin County residents rely heavily on their vehicles for travel.

Registered Motor Vehicles

The Massachusetts Registry of Motor Vehicles provides data about the number and type of registered vehicles by town and by year from 1990 to 2015[9]. The figures include vehicles that are registered by individual residents as well as businesses. The types of vehicles include: automobiles, trailers, light trucks, heavy trucks, motorcycles, luxury vehicles, and other vehicles.

According to this dataset, the number of total registered motor vehicles from 1990 to 2010 steadily grew in Franklin County and in Massachusetts overall, with the exception of a slight decline during the Great Recession from 2006 to 2009. This growth in the number of registered vehicles was at a higher rate than the population growth rate. In this period, the number of registered vehicles in Franklin County increased from 54,680 in 1990 to 82,646 in 2010, which is an increase of 51%. During this period, the total county population only grew by 2%. A similar pattern emerges at the state level, from 1990 to 2010 the number of registered vehicles grew by 46%, while the population grew by 9%.

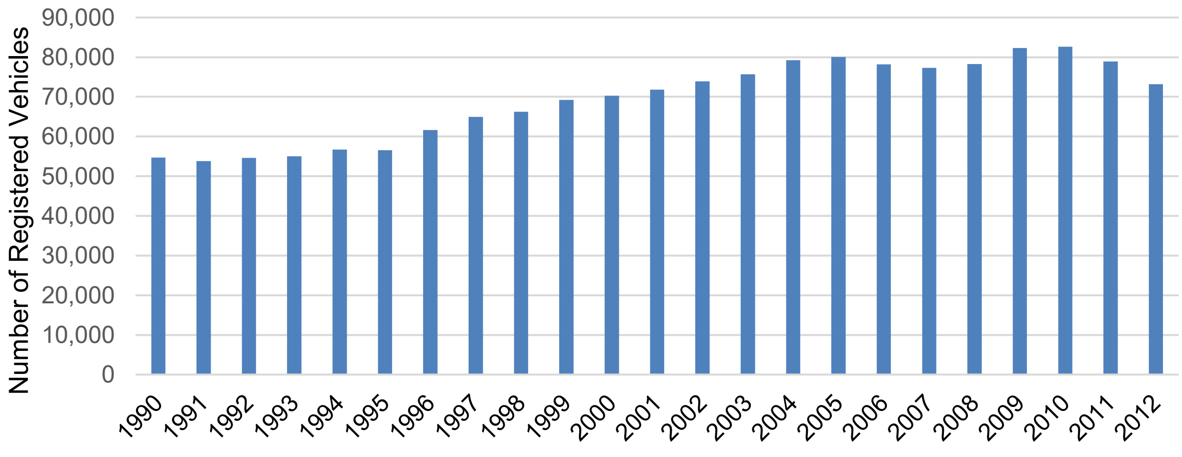


Figure 4-6: Total Number of Registered Motor Vehicles in Franklin County, 1990 to 2012

Source: Massachusetts Registry of Motor Vehicles, as provided by the Massachusetts Department of Revenue, Division of Local Services.

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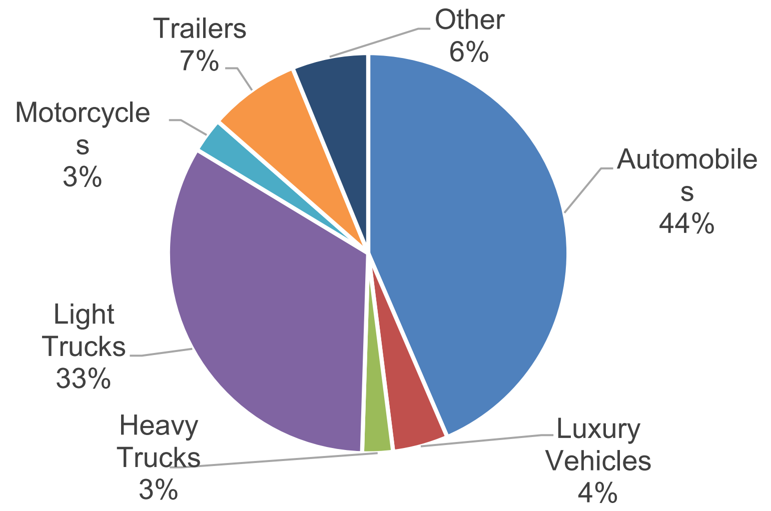
[9] Data is not available for select towns in 2013 and 2014, so Franklin County figures could not be calculated for those years.

However, starting in 2011 through to 2015, there has been a steady decline in the total number of registered vehicles in both Franklin County and Massachusetts. From 2010 to 2015, the number of registered vehicles declined by 26% in Franklin County and 24% in Massachusetts. During this period, Franklin County's population declined by 1% and Massachusetts' population grew by 4%.

Several factors are considered to contribute to this trend in declining total number of registered motor vehicles. These factors range from demographic trends to shifts in transportation modes. As the largest age group in the country, the Baby Boom generation (born between 1944 and 1964), gets older, they may discontinue driving. It has been reported that the Millennial generation (born between 1981 and 1996) is less likely to own cars and to drive, due to costs and personal preference.[10] In addition, new transportation options may also influence car ownership trends, such as ride-sharing services (like Uber and Lyft), car sharing services (like Zipcar) or public bike-sharing programs in cities. Lastly, public policy and planning efforts to foster more pedestrian and bicycle friendly communities may also influence the likelihood for commuters to choose these options rather than own a car.

Figure 4-7: Number of Registered Motor Vehicles by Type in Franklin County, 2015



Source: Massachusetts Registry of Motor Vehicles, as provided by the Massachusetts Department of Revenue, Division of Local Services.

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[10] Mary Wisniewski, Chicago Tribune, November 12, 2018. "Why Americans, particularly millennials, have fallen out of love with cars."

Another trend is the shift in the types of vehicles registered in Franklin County. From 2010 to 2015 there was a 17% decline in the number of registered automobiles, a 11% decline in light trucks, 8% decline in heavy trucks, 46% decline in motorcycles, 22% decline in luxury vehicles. However, there was a 119% increase in the number of "other" vehicles. The definition for "other" vehicles is not available, but may include electric vehicles.

Households Without Cars

In 2017, 7% of Franklin County households (2,200 households) did not own or have access to a motor vehicle for their transportation needs, compared to 12% of households statewide. The Census figures show that the two population groups that are most likely not to own a car are renter households and older households. An estimated 18% of renter households in Franklin County have no vehicle available. The higher rate of carlessness among renters is related to two primary factors. First, most of Franklin County's rental housing is located in village and downtown areas that, because of their population density, typically have the highest degree of access to transit services. Secondly, renter households, on average, have lower incomes than homeowners and are more likely not to own a private vehicle because of the costs associated with vehicle ownership. Studies by the Bureau of Transportation Statistics (BTS) and the Surface Transportation Policy Program (STTP) have found that transportation costs are typically the second largest household expense next to housing. Low income households can be particularly burdened by transportation costs, spending a quarter of their income or more, on their travel and private vehicle expenditures. The STPP study found that switching from the use of a private vehicle to transit service can save a family thousands of dollars annually.

The Census data also show that, by age group, households with the head of household age 65 years and over, are more likely not to have a car. In Franklin County, 11% of households led by householders aged 65 or older are carless. Reasons for the higher level of carless households among older seniors include physical limitations, which make driving difficult, and as discussed above, the expense of private vehicle ownership for elderly fixed-income households.

Commuting Trends

Mode of Transportation to Work

The automobile is the primary mode for commuting travel in Franklin County. In 2017, 86% of Franklin County's employed residents commuted to work by car; with 77% driving to work alone, and 9% carpooling. In comparison, 71% of Massachusetts commuters drove alone and an additional 7% carpooled. The proportion of Franklin County commuters who walked

(4%) or other means (1%), such as bicycling, was similar to the state averages. However, the percentage of commuters who took transit in Franklin County was 2%, compared to the statewide average of 10%. A higher percentage of employees worked at home in Franklin County (7%) than the statewide average (5%). Most of the towns with high percentages of workers working from home (10% or greater) lived in the western county hilltowns, such as Ashfield, Conway, Hawley, Rowe, and Shelburne. Other towns with high rates of at home workers were Gill, Leverett and Wendell.

As mentioned previously, it is anticipated that the number of employees working from home, also known as telecommuters, will continue to increase in Franklin County in the coming decades. The growth in telecommuting will be driven by the increasing number of technology and information-based jobs that can be conducted from remote locations, such as a worker's home. It will also be driven by the number of people who move to Franklin County, but who choose to keep jobs that are based outside of the region and to which they do not need to commute every day. Another important factor that will promote telecommuting in the region is the recent and pending expansion of telecommunications infrastructure and high-speed internet services in the region.

Commute Patterns

The American Community Survey five-year estimates data provides commuter information including the average or mean travel time to work. The mean travel time for Franklin County workers is 24.2 minutes, compared to 29.2 minutes statewide. The towns with the lowest commute times are closest to major employment centers. They are Greenfield (19.4 minutes), Gill (19.7 minutes), Sunderland (20.2 minutes) and Montague (20.6 minutes). As would be expected, the towns with the longest commute times are furthest from major employment centers. They are Warwick (37.4 minutes), Heath (37.4 minutes) and Charlemont (35.7 minutes).

According to this data set, approximately 61% of Franklin County residents worked in Franklin County and 39% commuted to jobs outside the county. Of those who worked in Franklin County, 29% work in the same town where they live. For more detailed information (such as the destinations where Franklin County residents work), another data set provides more detailed information on commuting patterns at the town and county level.

According to commuter inflow and outflow data from the U.S. Census[11], there were 33,615 people who were employed and lived in Franklin County in 2015. Of these employed

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[11] U.S. Census Bureau, Longitudinal Employer-Household Dynamics, 2015

Franklin County residents, 41% worked at jobs located in Franklin County, and 59% worked at jobs located outside of the county. Conversely, there were 23,083 employees that worked at jobs located in Franklin County. Of these workers, 60% were filled by people who lived and worked in Franklin County, and 40% were filled by workers who lived outside of Franklin County. As there were more people leaving Franklin County than entering Franklin County to work, this results in a net outflow of workers that totaled 10,532 people in 2015.

Figure 4-8: Top Work Destination Counties for Employed Franklin County Residents, 2015

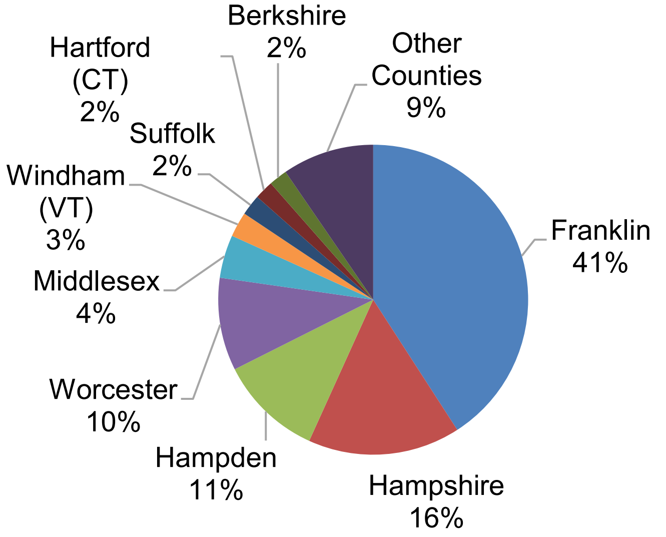
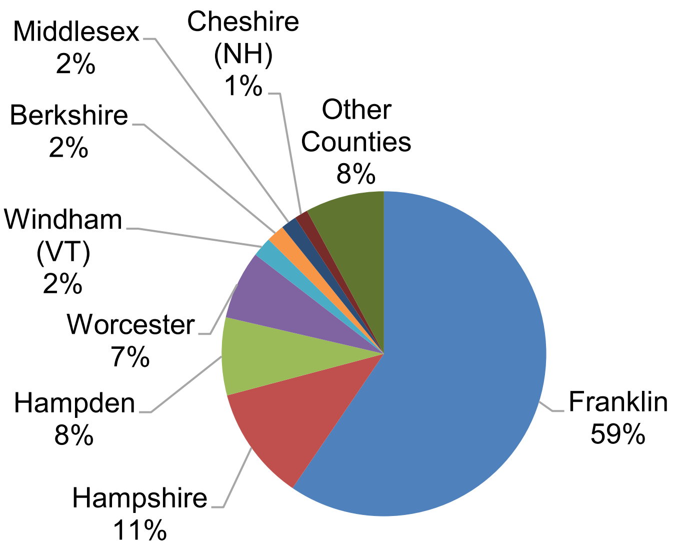


Figure 4-9: Top Counties Where Workers Employed in Franklin County Live, 2015



Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics, 2015

Most employed Franklin County residents that worked outside of Franklin County, worked in employment centers within easy commuting distance, such as Amherst and Northampton in Hampshire County, or Athol in Worcester County. However, other top work destinations for residents included the Commonwealth's largest cities such as Springfield, Worcester and Boston. A breakdown of worker destinations by county is shown in Figure 4-8.

For jobs located in Franklin County, the majority of workers (59%) are Franklin County residents. For the workers who live outside the county and commute to Franklin County for work, most live in Hampshire, Hampden and Worcester counties.
Workers also come from Windham County in Vermont and Cheshire County in New Hampshire. Franklin County and these two neighboring counties to the north share many characteristics. Workers, employers and consumers do not focus on state boundaries when seeking employment or goods and services. Recently, the FRCOG and corresponding regional planning agencies in southeast Vermont and southwest New Hampshire have begun working together to examine shared transportation and economic issues and improve connections between them.

Land Use

The link between land use and transportation is important to consider as new transportation facilities are reviewed or the expansion of old facilities is evaluated. Transportation improvements or expansions, such as adding roadway lanes, upgrading bridges to remove weight restrictions, or establishing and expanding transit services, can themselves promote additional development and influence future development patterns.

As the state's most rural region, Franklin County has experienced a relatively limited amount of development. The most recent land use data is from 2005. While more recent data is not available, building permit data trends indicate that residential growth was at a considerable lower rate than in years prior to 2005.

The most recent land use figures available are based on MassGIS 2005 mapping of land uses from aerial photographs. Acreage by land use for Franklin County is shown in Table 4-2.

Table 4-2: Franklin County Land Use, 2005

Land Use Category	Acreage	% of Total
Undeveloped Land	***436,975***	***94.3%***
Forest	357,909	77.2%
Agriculture	36,072	7.8%
Open Land	8,164	1.8%
Recreation	1,716	0.4%
Water/Wetlands	33,111	7.1%
Developed Lands	***26,535***	***5.7%***
Residential	18,981	4.1%
Commercial/Industrial	2,178	0.5%
Urban Open*	2,072	0.4%
Transportation	2,167	0.5%
Other Developed Uses**	1,136	0.2%
Total Acreage	***463,511***	***100%***

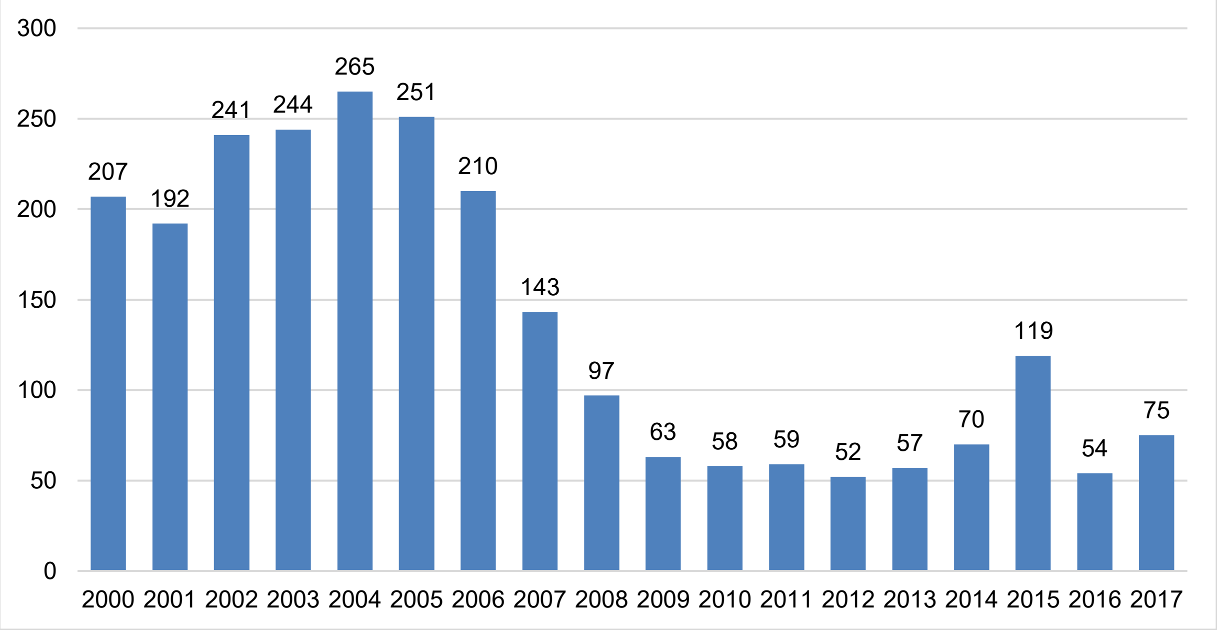
*Urban Open land includes parks, cemeteries, public and institutional buildings, and green spaces.
**Other Developed Uses include mining, waste disposal, etc.
Source: MassGIS, 2005.

According to 2005, forestland is still the predominant land use, accounting for more than three-quarters (77%) of the county's acreage, and even the most urbanized towns in the county, such as Greenfield, are at least 45% forested. Farmland is the second largest land use, comprising 7.8% of the county's total land area. All developed land uses (residential, commercial, etc.) combined account for only 5.7% of the county's acreage.

Although Franklin County is predominately undeveloped, it experienced substantial growth and development in the late 1980s and into the 1990s. Between 1985 and 1999, the amount of developed land in Franklin County increased 30% (7,200 acres). Most of this new development, almost 6,600 acres, was residential in nature. In Massachusetts, new residential development can occur along road corridors with relative ease, due to the State's Approval-Not-Required (ANR) rules, which allow for the subdivision of land without Planning Board approval, if certain conditions can be met. These conditions are that each subdivided lot must meet minimum road frontage requirements and must have adequate access to protect public safety and welfare. As a result of the expansion in residential acreage from 1985 and 1999, the amount of Franklin County agricultural land decreased by 12% and the amount of forestland fell by 2%.

MassGIS updated its aerial photography and land use data in 2005. Unfortunately, due to different data collection methodology, the 2005 land use data is not directly comparable to the 1999 land use data. As a result, it is difficult to assess how land uses have changed in the six years between 1999 and 2005. It is very likely that the trend of residential growth continued during that time period based on the increase in building permits. Between 2000 and 2004, the number of new housing units in the region grew steadily. By 2007, the number of building permits dramatically decreased due to the economic impacts of the Great Recession. After 2012, the number of building permits began to increase. The sharp rise in 2015 is from due to the reconstruction of the large, multi-family Leyden Woods apartment complex in Greenfield. Today, there are indications that the construction market is beginning to strengthen and it is likely that development will pick up in the next several years – particularly as more communities gain access to broadband service. Figure 4-8 shows the change in building permit activity in Franklin County between 2000 and 2017.

Figure 4-10: Number of Building Permits Issued in Franklin County, 2000 to 2017



Source: U.S. Census Bureau, Construction Statistics, 2000 - 2017.

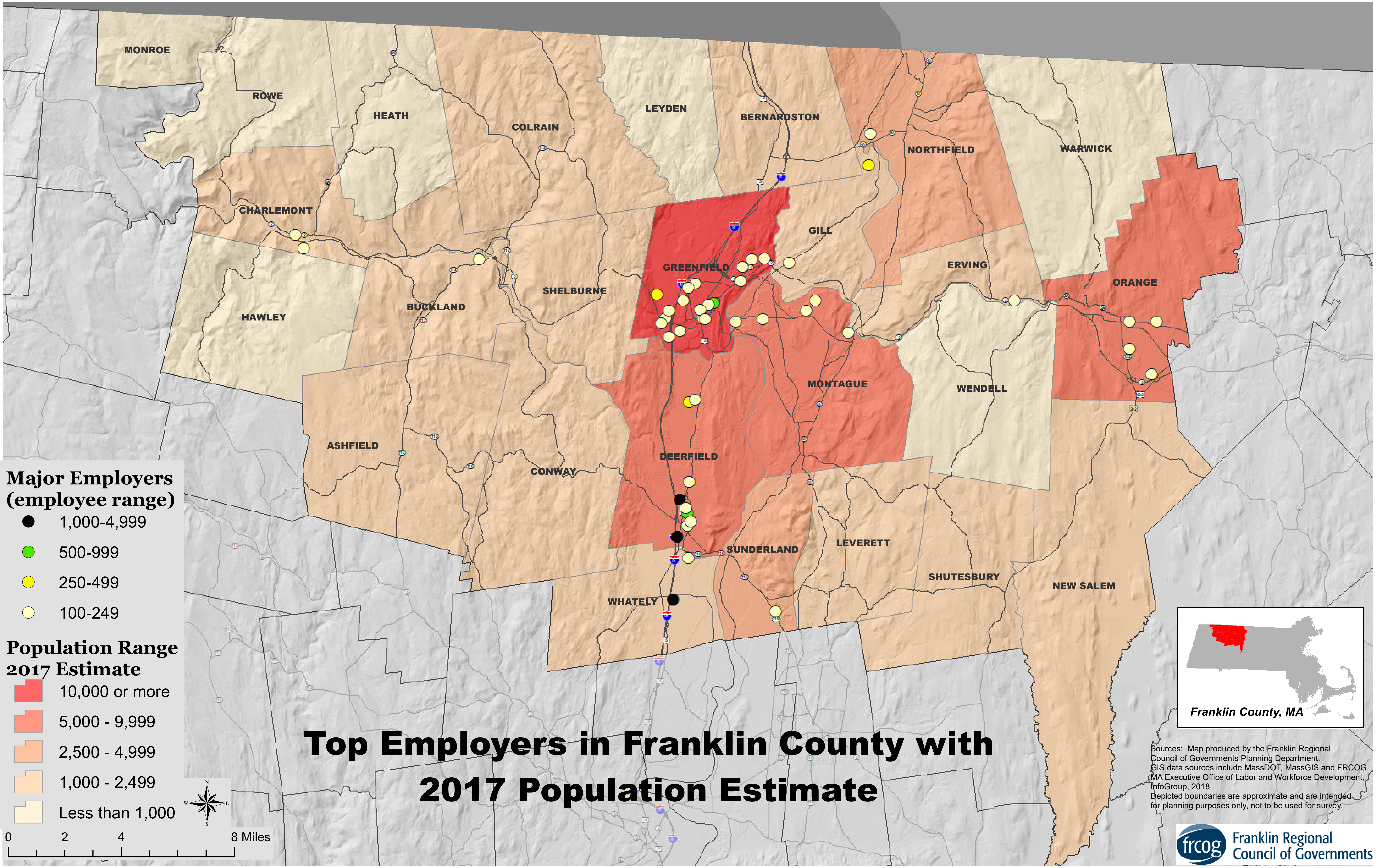
Almost all of the housing units that have been developed since 2000 were single-family homes built along existing roadways, such as on ANR lots. There are currently very few subdivisions being built in the region. However, as growth in the region continues and there is less land with necessary frontage available for development, it is anticipated that more subdivisions will be constructed. These subdivisions will include new roadways to serve the new homes. These roadways will need to be maintained as either private roads by the developer and property owners, or as public roads by the communities in which they are located. The impact of the subdivision roads on existing roadway infrastructure will also need to be assessed.

In response to development pressures and concerns about their ability to handle future potential growth, a number of Franklin County communities have revised their zoning bylaws to direct growth to areas within their towns with the highest current levels of development and the best infrastructure (water, sewer, roadways) to accommodate new growth. At the same time, towns have also worked to encourage other areas to remain undeveloped farmland and forestland. Land conservation organizations in the region, such as the Franklin County Land Trust and the Mount Grace Land Conservation Trust, have protected a considerable amount of private farm and forestland in the region through the outright purchases of land, or through the purchases of development rights.

Summary of Demographics and Socioeconomic Trends

The following are key demographic and socioeconomic trends that have significant implications for the transportation system and transportation planning within the region:

- Population size has remained relatively stable and is projected to decline slightly in coming decades.
- There has been and will continue to be high growth in the number of elderly residents.
- The unemployment rate continues to be low and the size of the labor force is recovering from Great Recession levels.
- There will be a growing number of telecommuters/long distance commuters from Franklin County.
- Employment projections show that employment in Franklin County will decline over the next twenty-five years.
- The pace of new construction has been very slow and may increase in the future, but will likely not be significant ensuring that Franklin County remains a rural area with a large percentage of its acreage in forest, farm, and open land.



Top Employers in Franklin County with 2017 Population Estimate

Major Employers (employee range)

- ● 1,000-4,999
- ● 500-999
- ● 250-499
- ○ 100-249

Population Range 2017 Estimate

- 🟥 10,000 or more
- 🟥 5,000 - 9,999
- 🟧 2,500 - 4,999
- 🟧 1,000 - 2,499
- 🟨 Less than 1,000

Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
MA Executive Office of Labor and Workforce Development,
InfoGroup, 2018
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments

5

Road and Bridge Infrastructure

5 Roadway and Bridge Infrastructure

Franklin County has a diverse collection of transportation resources, including scenic roadways and covered bridges. A safe and efficient transportation network depends on the quality and integrity of the transportation infrastructure in the County, including roads and bridges. This chapter examines the condition of these road and bridge resources and includes an analysis of the roadway network (mileage and functional classification), traffic volumes, bridge ratings, pavement management analysis, congestion and traffic operations. The goal of this chapter is to identify existing concerns and future needs based on this analysis and public input received during the development of this plan.

Existing Conditions

Roadways in Franklin County comprise over 2,000 centerline miles. The majority of these miles, 79%, are maintained by the Towns, while MassDOT owns and maintains 11% of the roads. The remaining 10% of the roads are owned by various other entities or classified as unaccepted, meaning they are privately owned and maintained. Table 5-1 details the breakdown of roadway miles by maintenance authority within each of the municipalities in Franklin County.

Functional Classification

Functional classification is the categorization of roads in terms of the service, or function, that the roads provide within the regional network. Additionally, functional class has both rural and urban designations based on the U.S. Census population figures. The urban boundaries are based on population figures available from the 2010 U.S. Census. In Franklin County, there are three areas defined as large urban clusters (Census block groups with a population density of 5,000 to 50,000): Greenfield, South Deerfield, and Athol. The block group boundaries are not confined to town boundaries so will include areas of neighboring towns as well.

The majority of roadway mileage in Franklin County, 81%, is categorized as rural, with the remaining 19% defined as urban. The breakdown of road miles in Franklin County according to functional classification is summarized in Table 5-2. A map of the roadways in the County, showing the functional classification of each roadway and the urban cluster boundaries, is located at the end of this chapter.

Table 5-1: Roadway Centerline Mileage by Maintenance Authority

Town	Maintenance Authority							Town Total
	MassDOT	Town	State Forest	DCR*	State Institutional	State College	Un-accepted**	
Ashfield	11.0	71.6	0.4	0	0	0	11.9	94.9
Bernardsto	16.8	41.9	0	0	0	0	0.2	59.0
Buckland	6.0	43.1	0	0	0	0	1.1	50.3
Charlemont	12.0	42.7	1.6	0	0	0	0.4	56.8
Colrain	4.0	78.7	1.1	0	0	0	4.1	88.0
Conway	6.5	64.3	0	0	0	0	0.3	71.1
Deerfield	20.4	77.7	1.1	0	0	0	1.3	100.6
Erving	13.5	17.3	6.2	0	0	0	1.1	38.3
Gill	3.9	34.6	0.1	0	0	0	1.9	40.6
Greenfield	21.5	102.1	0	0	0.6	1.5	9.3	135.2
Hawley	0	44.8	3.4	0	0	0	0.2	48.5
Heath	0	52.2	1.5	0	0	0	5.8	59.5
Leverett	5.4	34.6	0	0	0	0	3.1	43.1
Leyden	0	35.5	0	0	0	0	2.5	38.1
Monroe	0	16.7	1.6	0	0	0	0.0	18.4
Montague	5.7	103.6	0.5	0	0	0	3.5	113.4
New Salem	11.9	35.7	0.2	53.8	0	0	2.2	103.9
Northfield	11.1	65.8	0.0	0	0	0	6.9	84.0
Orange	15.6	87.2	0.5	0	0	0	3.5	106.9
Rowe	0	36.0	0	0	0	0	0.3	36.4
Shelburne	9.3	49.8	0	0	0	0	0.08	59.2
Shutesbury	3.1	30.8	0	5.1	0	0	2.6	41.7
Sunderland	4.3	39.0	2.9	0	0	0	0.0	46.3
Warwick	0.01	56.0	6.6	0	0	0	1.6	64.3
Wendell	0.3	46.4	16.7	2.0	0	0	1.2	66.7
Whately	9.8	31.2	0	0	0	0	8.4	49.5
TOTAL	192.8	1340.1	45.0	61.0	0.6	1.5	62.7	1703.9

Centerline Miles refer to the linear length of a road segment. For divided highways, only the length of one side of the roadway has been counted. Source: MassDOT, Road Inventory 2017.

*Department of Conservation and Recreation. State parks and forests are also under the jurisdiction of DCR.
**Unaccepted Roadways consist of roads open to public travel but not formally accepted by a city or town, as well as some private ways.

Federal funds are available for improvements and maintenance based on roadway functional classification. All interstates and arterials are eligible for federal funds; all municipal or state-owned urban collectors and rural major collectors are also eligible; rural minor collectors, local roads and unaccepted private roads are not eligible for federal funds. Approximately 23% of the roads in Franklin County's road network are eligible for federal funds per roadway functional classification. The majority of the remaining 77% of the County's roads are rural minor collectors or local roads and depend on local funds and Chapter 90 funding from the State for improvements and maintenance. Only 0.1% of Franklin County roadways are unaccepted private roads and are ineligible for any public funding.

Table 5-2: Roadway Centerline Mileage by Functional Class

Functional Classification	Total Centerline Mileage	Percentage of Total
Urban Interstate	8.9	0.52%
Rural Interstate	14.9	0.87%
Urban Principal Arterial	37.8	2.22%
Rural Principal Arterial	29.4	1.73%
Urban Minor Arterial	55.0	3.23%
Rural Minor Arterial	53.5	3.14%
Rural Major Collector	219.3	12.87%
Urban Collector	28.8	1.69%
Rural Minor Collector	113.2	6.65%
Rural Local Road	955.4	56.07%
Urban Local Road	187.3	11.00%
Total	**1703.9**	**100%**

Source: Massachusetts Department of Transportation, Road Inventory Year-End Report and Road Inventory File, 2013.

Traffic Volumes and Growth Trends

In Franklin County, traffic volume data has been collected at more than 1,000 different locations since 1991. The majority of this data has been collected by the FRCOG, although some has been collected by MassDOT at continuous count stations on Interstate 91 and Route 2. The FRCOG maintains a database of all regional traffic volume data and makes it available online through MassDOT's Transportation Data Management System.

Traffic volumes on Franklin County's roadways vary from over 30,000 vehicles per day on sections of Interstate 91 to less than 100 vehicles per day on a number of local roadways. The most heavily traveled roadway in Franklin County is Interstate 91, where Average Annual Daily Traffic (AADT) volumes range from approximately 33,000 vehicles per day in Whately to less than 15,000 vehicles per day through Bernardston. Along Route 2, AADT volumes vary between 18,000 vehicles per day near the Greenfield Rotary to approximately 2,000 vehicles per day through the western end of Charlemont. Other high volume corridors include Route 116 in Sunderland and Route 5/10 in Whately, with traffic volumes near 14,000 vehicles per day.

Using a sampling of data collected between 2014 and 2018 at 23 locations throughout the County, annual traffic growth was examined and an Average Growth Rate (AGR) for traffic was estimated. There was significant variation in volume growth by location, with some locations showing increased traffic and some showing reduction in traffic volume over the same 5 year period. The overall AGR for the sample showed a negligible increase in traffic volume of 0.8% over the four-year period.

Bridges

Bridges are a critical component of the Franklin County roadway network. Maintaining the safety and functionality of bridges in Franklin County is a top priority. The majority of bridges located on high volume roadways are predominantly under the domain of the State and are inspected by MassDOT and ranked according to standards established by the American Association of State Highway and Transportation Officials (AASHTO). The purpose of the AASHTO rating is to provide a standard to compare the status of bridges in a region and across the country. Many factors are considered when developing the rating of a bridge, such as its structural integrity, the road's functional classification, the designed purpose of the bridge, etc. The AASHTO rating may allow some generalized assumptions. However, because determining a bridge rating is based on so many variables, it is important to research each bridge individually for specific information. In addition this numerical rating, bridges may be further classified as structurally deficient (SD). This classification can increase the priority of repair or replacement of the bridge. According to FHWA Bridge Program guidelines, for a bridge to be eligible for rehabilitation it must both be structurally deficient and have an AASHTO rating of 80 or less; and for a bridge to be eligible for replacement it must have an AASHTO rating of less than 50.

MassDOT maintains a listing of all bridges that meet the National Bridge Inventory (NBI) criteria set by FHWA. This criteria identifies bridges that are publicly owned highway bridges longer than twenty feet located on public roads. Railroad and pedestrian bridges are not included in the NBI, nor are bridges that have been closed for more than 10 years. Bridges that are not listed in the NBI are not eligible to receive Federal bridge replacement funding[1].

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[1] http://www.fhwa.dot.gov/bridge/nbis/#10

This bridge listing includes the year the bridge was built or rebuilt, the AASHTO rating from the most recent bridge inspection, and whether the bridge is structurally deficient, posted for weight limits, or closed. Information on Franklin County bridges and their current ratings are shown in a map at the end of this chapter.

Bridges are considered structurally deficient if they fall below specific thresholds for deck, superstructure, substructure or overall structural condition. These bridges may span a range of conditions, from requiring a minor, but vital, repair to a more complete rehabilitation or replacement. Structurally deficient bridges are not categorically unsafe for use. Posted weight limits may be necessary to ensure safety on some SD bridges. If a bridge is in need of significant repair to maintain current traffic volumes and vehicular weight, then that bridge should be high on the priority list. Statewide, priority for funding is given to structurally deficient bridges.

There are a total of 299 bridges in Franklin County that are on the NBI, according to the 2018 MassDOT Bridge Inventory. In order for a bridge to be eligible for rehabilitation it must be deficient and have an AASHTO rating of 80 or less. There are 167 bridges (56% of total) in Franklin County that are eligible for rehabilitation according to this threshold. This is a significant increase from 2014, when 28% of Franklin County NBI bridges were rated 80 or lower. Furthermore, 38 bridges (13% of total) meet the requirements for replacement with an AASHTO rating of less than 50. This is the same number of bridges that were rated at or below 50 in 2014. A total of 43 bridges (14% of total) in the County are formally classified as structurally deficient.

MassDOT also tracks the condition of bridges on the National Highway System (NHS) in accord with FHWA performance measures. The measure used to evaluate bridge conditions is a Bridge Health Index (BHI). The BHI indicates the percentage of bridge area that is rated in poor, fair, or good condition, and expresses this as a ratio of bridge area in poor condition to total bridge area. Bridges on the NHS constitute 44% of NBI bridges in Massachusetts and 70% of the total area of NBI bridges. Ninety-seven percent of NHS bridges are under MassDOT jurisdiction. Of the 299 NBI bridges in Franklin County, 63, or 21%, are on the NHS. Table 5-3 presents an overview of the bridge condition for NBI bridges in Franklin County, by municipality.

Several other types of bridges are located throughout the County in addition to those bridges listed on the NBI. Many of these bridges are municipally owned, including small bridges (10 – 20 ft. span) and culverts. While MassDOT is responsible for the inspection of all NBI bridges only, MassDOT is actively building a comprehensive inventory of all other bridges in the state. Table 5-4 shows the Top Ten Worst Franklin County bridges, representing the bridges with the lowest AASHTO ratings according to the 2018 MassDOT Bridge Report; the list does not include bridges that are currently under active construction.

Table 5-3: NBI Bridge Condition in Franklin County, by Town

	Total NBI Bridges	Structurally Deficient NBI Bridges				NBI Bridges w/Posted Weight Limit, Not SD
		SD Open, Not Posted	SD Open, Posted	SD Closed	Total SD Bridges	
Ashfield	11	0	0	0	0	3
Bernardston	15	3	1	0	4	1
Buckland	17	0	1	0	1	0
Charlemont	30	3	1	1	5	2
Colrain	24	1	0	2	3	0
Conway	19	1	1	0	2	4
Deerfield	16	2	0	0	2	2
Erving	10	0	1	0	1	3
Gill	4	0	0	0	0	1
Greenfield	47	4	2	0	6	2
Hawley	10	0	0	0	0	2
Heath	5	0	1	0	1	1
Leverett	10	0	2	1	3	1
Leyden	1	0	0	0	0	0
Monroe	4	0	1	0	1	0
Montague	18	3	2	0	5	2
New Salem	2	1	0	0	1	0
Northfield	12	0	1	0	1	3
Orange	15	3	0	1	4	2
Rowe	4	0	1	0	1	0
Shelburne	4	0	1	0	1	0
Shutesbury	1	0	0	0	0	0
Sunderland	1	0	0	0	0	0
Warwick	3	0	0	0	0	0
Wendell	1	0	0	0	0	0
Whately	15	1	0	0	1	1
County Totals	299	22	16	5	43	30

Source: MassDOT Bridge Reports for RTPs (2018)

Table 5-4 Top Ten Worst Franklin County Bridges by AASHTO Rating

Town	Bridge	AASHTO Rating	Status
Buckland	Route 2A/Bridge Street over Deerfield River	1.0	Structurally Deficient, Posted Weight Limit, Open, MassDOT Project initiated
Deerfield	Main Street over B&M Railroad	2.0	Posted Weight Limit, Open
Monroe	Raycroft Road over Dunbar Brook	15.3	Structurally Deficient, Posted Weight Limit, Open, MassDOT Project initiated
Charlemont	West Oxbow Road over Wilder Brook	16.0	Structurally Deficient, Open, MassDOT Project on 2020 TIP
Charlemont	East Oxbow Road over Oxbow Brook	17.1	Structurally Deficient, Posted Weight Limit, Open, MassDOT Project on 2022 TIP
Bernardston	Route 5/Brattleboro Road over Shattuck Brook	18.4	Structurally Deficient, Posted Weight Limit, Open, MassDOT Project on 2020 TIP
Leverett	Old Coke Kiln Road over Sawmill River	20.1	Structurally Deficient, Closed
Charlemont	Tower Road over Chickley River	20.7	Structurally Deficient, Closed, MassDOT Project on 2020 TIP
Montague	North Leverett Road over Sawmill River	22.7	Structurally Deficient, Posted Weight Limit, Open
Greenfield	Montague City Road over Connecticut River (General Pierce Bridge)	23.9	Structurally Deficient, Posted Weight Limit, Open, MassDOT Project in Capital Investment Plan 2020-2023

In order to assist municipalities with repair or replacement of bridges that are not eligible for federal aid funding programs, Massachusetts implemented the Small Bridge Program in 2016. The program provides reimbursable assistance up to $500,000 per year for work on bridges with spans of 10 ft. to 20 ft. Thus far, the Small Bridge Program has awarded approximately $23 million to 48 communities, including $3.6 million to 8 Franklin County towns, as shown in Table 5-5.

Table 5-5 Small Bridge Program Awards in Franklin County

Year	Town	Bridge	Amount
2017	Ashfield	Apple Valley Road over Upper Branch Clesson Brook	$500,000
2017	Charlemont	Maxwell Road over Maxwell Brook	$490,000
2017	Colrain	Adamsville Road over Tisdell Brook	$500,000
2017	Warwick	Gale Road over Gales Brook	$500,000
2017	Wendell	Wendell Depot Road over Whetstone Brook	$450,000
2017	Whately	Williamsburg Road over West Brook/Sanderson Brook	$497,000
2018	Orange	East Road over West Brook	$420,000
2018	Shelburne	Bassett Road over Dragon Brook	$300,000
		Total	$3,657,000

In addition to bridges, culverts are a crucial part of the transportation network. Most culverts in Franklin County are municipally owned and the responsibility of each town to maintain. Culverts are often less than 10 feet long, but there are many that are between 10-20 feet, and some that exceed 20 feet in span. Often these culverts are fall into a gray area, where they are too long to be eligible for culvert replacement program, such as the Massachusetts Culvert Replacement Municipal Grant Program, but also are not eligible for the Small Bridge Program. Table 5-6 shows the culverts in Franklin County that have had repair funding awarded through the Culvert Replacement Municipal Grant Program since 2017.

Table 5-6 Culvert Replacement Grant Program Awards in Franklin County

Year	Town	Bridge	Amount
2018	Bernardston	Mill Brook Culvert on Eden Trail; data collection engineering, design & permitting for culvert replacement	$74,930
2018	Colrain	North River Tributary culvert; data collection engineering, design & permitting for culvert replacement	$90,000
2019	Buckland	Clark Brook culvert; data collection engineering, design & permitting for culvert replacement	$91,000
2019	Colrain	North River Tributary culvert; construction of culvert replacement	$150,000
		Total	$405,930

Another source of funding available for local bridge and roadway repairs, as well as other local infrastructure projects, is the MassWorks Infrastructure Program (MassWorks). Begun in 2010 and reauthorized in 2018, MassWorks is a competitive grant program that provides the largest and most flexible source of capital funds to municipalities and other eligible public entities for public infrastructure projects that support and accelerate housing production, spur private development, and create jobs throughout the Commonwealth. Table 5-7 is a list of transportation infrastructure projects in Franklin County that have received MassWorks awards since 2011.

Table 5-7 MassWorks Infrastructure Grant Program Awards in Franklin County

Year	Town	Transportation Infrastructure Project	Award
2011	Bernardston	School Road Improvement	$399,000
2012	Buckland	Clesson Brook Road Improvement	$971,000
2013	Conway	Downtown Parking and Safety Improvements	$997,521
2013	Deerfield	River Road Reconstruction	$952,463
2013	Warwick	Winchester Road (Route 78) Paving	$495,000
2014	Colrain	Jacksonville Road Improvement	$1,000,000
2014	Heath	Safety Improvements	$983,102
2016	Charlemont	Legate Hill Road and Route 8A Bridge Repairs	$949,000
2016	Greenfield	Greenfield Parking Garage	$7,500,000
2016	Orange	Orange Innovation Center Parking Infrastructure	$200,000
2017	Colrain	Adamsville Road and Call Road Bridge Replacements	$1,000,000
2017	Monroe	Kingsley Hill Road Safety Improvements	$1,000,000
2017	Rowe	Cyrus Stage Road Bridge Replacement	$420,000
2018	Buckland	Upper Street Reconstruction	$1,000,000
2018	Heath	Route 8A Reconstruction	$466,900
		Total	$18,333,986

Pavement Management Analysis

A Pavement Management System (PMS) is a planning tool that collects and monitors information on current pavement conditions, evaluates and prioritizes alternative maintenance, rehabilitation and reconstruction (repair) strategies. This involves visually inspecting pavement and assessing the level of deterioration, then analyzing the condition of all roadways in the network, and identifying maintenance priorities based on lie-cycle costs, traffic volumes, and roadway functional classification. In Franklin County, it is important to maintain a PMS for the region because pavement is such a significant capital investment and a critical component of our transportation infrastructure.

MassDOT and the FRCOG each have a history of conducting pavement management analyses throughout the County. Franklin County has a total of 473.1 miles of roadway that are eligible for federal funding. Of the federal-aid eligible roadways, 54% are under Town jurisdiction, with the remaining 46% maintained by MassDOT. Pavement condition data has been collected by MassDOT for 54% of the federal-aid eligible roadways in the County using specialized data collection equipment. A special testing vehicle, the Automatic Road Analyzer (ARAN) collects pavement condition data and rates the pavement condition according to the Pavement Serviceability Index (PSI). Within this scale, roadway conditions are classified as poor, fair, good, or excellent. From the sample of roadways that have been surveyed by MassDOT and the FRCOG, pavement condition has been estimated for the region and is shown in Table 5-8 and Figures 5-1, 5-2, and 5-3.

Table 5-8 Regional Pavement Condition

Condition	Interstate	Non-interstate	Total
Poor	4%	16%	16%
Fair	7%	33%	32%
Good	18%	25%	25%
Excellent	71%	26%	27%

Fig. 5-1 Interstate Pavement Condition

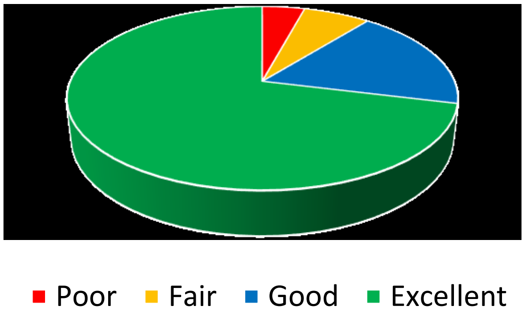


Fig. 5-2 Non-interstate Pavement Condition

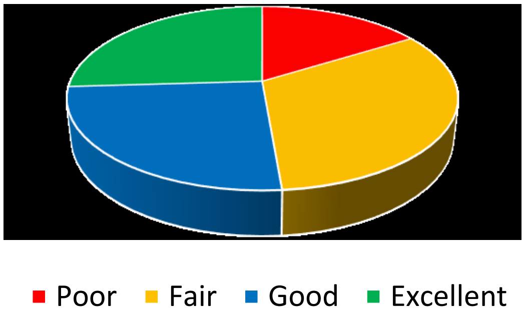
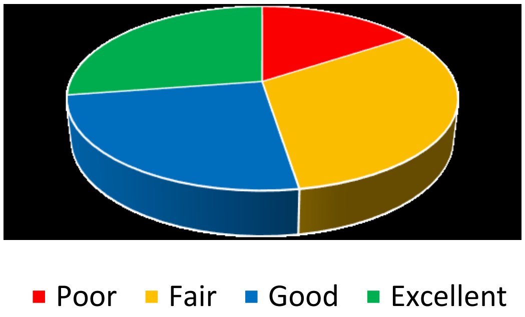


Fig. 5-3 Overall Regional Pavement Condition



Due to limited resources, it is unrealistic to expect to bring all roadways in the County to excellent condition at one time. Furthermore, it is important to note that even as roadways reach excellent condition, they will still need to be maintained in order to prevent deterioration. It is necessary to prioritize pavement management needs throughout the County and balance this with cost and safety considerations. This is further complicated by the fact that the relationship between pavement condition and cost is not linear. For example, the strategy that often seems the most logical (repair the worst roads first), is actually the least cost effective. Research has shown that is far less expensive to keep a road in good condition than it is to repair it once it has deteriorated. As roadway conditions worsen, the cost of repairs increases significantly. A roadway that is in poor condition has already reached a point where it cannot be repaired using low-cost treatments, while a roadway in good condition can be maintained at less expense.

As shown in Table 5-8 and Figure 5-3, the majority of roadways surveyed in Franklin County are in Fair condition. In order to calculate the anticipated costs of repair and maintenance to bring non-interstate roadways up to an excellent rating, the pavement condition data for federal aid roadways in the County was analyzed using cost estimates derived from neighboring regional planning agencies, including Pioneer Valley Planning Commission, Berkshire Regional Planning Commission, and Montachusett Regional Planning Commission.

Estimated maintenance and repair costs are shown in Table 5-9 for three possible maintenance strategies. These costs are approximate as they are based on an estimated condition of the regional pavement system as well as projected cost estimate figures. The proportions of sampled roadways in poor, fair, good and excellent condition were extrapolated to estimate the cost of repairing and maintaining all federal-aid eligible roadways in Franklin County.

Table 5-9: Pavement Management Repair Strategy Cost Estimates

Maintenance Strategy	Years	Description	Estimated Cost
STRATEGY A: Stop further deterioration	1-5	Bring roadways in good and fair condition to excellent condition; maintain roadways in excellent condition.	$165,831,348
	6-10	Bring roadways in poor condition to excellent condition; maintain roadways already in excellent condition.	$175,123,395
		STRATEGY A Total Cost	$340,954,743
STRATEGY B: Repair the best roadways first	1-5	Bring roadways in good condition to excellent condition; maintain roadways in excellent condition.	$48,515,602
	6-10	Bring roadways in poor and fair condition to excellent condition; maintain roadways already in excellent condition.	$321,320,158
		STRATEGY B Total Cost	$369,835,761
STRATEGY C: Repair the worst roads first	1-5	Bring roadways in poor and fair condition to excellent condition.	$257,843,697
	6-10	Bring roadways which have deteriorated to good and fair condition to excellent condition; maintain roadways already in excellent condition.	$168,347,788
		Strategy C Total Cost	$426,191,485

Table 5-9 shows that the most cost-effective maintenance strategy is “STRATEGY A: Stop Further Deterioration.” This strategy proposes maintaining roadways that are currently in excellent and good condition while trying prevent further deterioration of roadways in fair condition and bring those up to excellent condition as soon as possible.

Traffic Studies

Orange Main Street Intersection Study

By request of the Town of Orange, the FRCOG evaluated the effects of turning movements by large trucks and buses at the intersection of North Main Street, East Main Street, South Main Street, and West Main Street. The study examined the extent of right-turn encroachments on opposing lanes of traffic and the corners of the intersection, and provided recommendations to mitigate the impact of these encroachments.

Truck turning on Main Street in Orange

Erving/Northfield Heavy Commercial Vehicle Exclusion Study

The Towns of Erving and Northfield requested FRCOG assistance in enacting an exclusion of heavy commercial vehicles on Church Street and North Street in Erving, and on Gulf Road in Northfield. A Heavy Commercial Vehicle Exclusion Study was prepared to demonstrate the prevalence and impact of commercial trucks on these local roadways and was used to justify a commercial vehicle exclusion, which was approved by MassDOT for enactment in 2019.

Most Hazardous Intersections in Franklin County

Approximately every three years the FRCOG analyzes crash data from the Registry of Motor Vehicles for the twenty-six communities in Franklin County to identify intersections that have experienced a repeated occurrence of crashes. The study identifies the 50 most hazardous intersections in the County and ranks them based on a calculated crash rate that accounts for the severity of each of the crashes, as well as the rate of exposure to crashes, based on traffic volumes. The most recent study was completed in 2017 and reviewed crash data from 2011 through 2013. This study is described more thoroughly in Chapter 13 – Safety and Security. An update of the report, using the next set of available data, will be completed in 2020. In 2018, the FRCOG conducted an assessment of safety improvements that have been implemented in recent years at the intersections identified as hazardous in previous reports, showing an overall improvement in crash rates.

Road Safety Audits

The Road Safety Audit (RSA) process is an effective tool for improving traffic safety at specific locations and is a measure that has been supported for many years by MassDOT and the FHWA. Since the implementation of the multi-disciplinary RSA process in Franklin County in 2010, RSAs have been conducted at twenty-one locations in the region. More details about RSA activity in Franklin County are provided in Chapter 13 – Safety and Security.

In 2017, the FRCOG also conducted follow-up evaluation of safety improvements implemented at the Rotary in Greenfield as a result of RSA recommendations.

Distracted Driving Report

In recent years, a movement has grown that aims to achieve a highway system with no fatalities or serious road traffic injuries; this movement is known as Vision Zero. Vision Zero urges communities and policy makers to embrace new methodologies to eliminate roadway injuries and death. Distracted driving is a particular focus area of Vision Zero, as it is a problem that may be solved by technology, such as the driver assist features (lane assistance, rear-view cameras, adaptive cruise control, etc.) of new cars on the road today, and the driverless, autonomous vehicles of the future.

The FRCOG has begun exploring ways to implement Vision Zero principles in our transportation planning. To start, a report was prepared, analyzing the prevalence and unique features of distracted driving crashes in Franklin County, and providing recommendations towards eliminating these types of vehicle crashes.

Turning Movement Counts

The FRCOG has conducted many vehicle turning movement counts in Franklin County in support of planned roadway improvement projects. In recent years, turning movement counts have been conducted at the intersections of Route 2 and Colrain/Shelburne Road in Shelburne; at Main Street at Federal Street and Main Street at Court Square in Greenfield; and at Route 2 at Colrain Road and Route 2 at Big Y in Greenfield.

Planned and Completed Roadway Improvement Projects

Route 2 Safety Improvements

Since the formation of the Route 2 Task Force in 1994, the FRCOG has been working together with the communities along the Route 2 corridor from Phillipston to Greenfield to create a safer roadway. More than $168 million has been invested in constructing safety improvements along the corridor. Recently completed work includes safety improvements at the intersection of Route 2 and Route 2A in Erving and roadway improvements in Gill and Greenfield. Improvements in Erving Center and Farley in Erving are currently under design by MassDOT. Safety barriers on the French King Bridge between Gill and Erving are also planned. More detailed information about the Route 2 Safety Improvements and the Route 2 Task Force can be found in Chapter 13 – Safety and Security.

Route 2 at Colrain/Shelburne Road Intersection Improvements, Shelburne

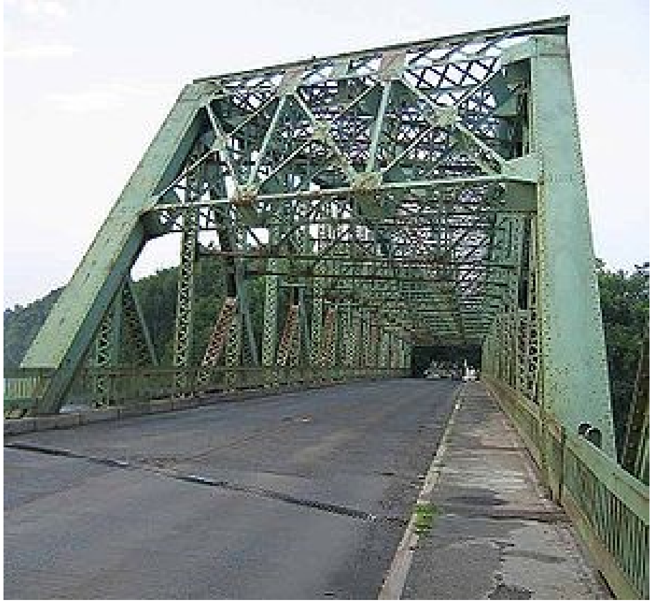
The intersection of Route 2 and Colrain/Shelburne Road in Shelburne was identified as a high crash location in the Route 2 West Safety Study and was the subject of a Road Safety Audit (RSA) in 2014. Based on the recommendations in the RSA, the intersection was reconstructed to raise the grade of Colrain/Shelburne Road at Route 2 and improve sight distance for approaching and turning vehicles. Construction was completed in 2018.

Greenfield Road Improvements, Montague

The reconstruction of Greenfield Road in Montague was completed in 2017, consisting of roadway reclamation and minor widening of approximately 2 miles from near Sherman Road south to Hatchery Road. The construction included safety improvements at the intersection of Randall Road, and widened shoulders for bicycle accommodation on this segment of the Franklin County Bikeway. In addition, a new bicycle and pedestrian bridge was constructed over the railroad, south of Hatchery Road.

Route 2 Village Center Improvements, Charlemont

This 1.5 mile highway reconstruction project begins 1500 feet west of Route 8A south and ends 2600 feet east of Route 8A north. The project includes roadway and sidewalk reconstruction, drainage system and culvert repairs, and construction of various traffic calming measures in the Charlemont village center. The Town has requested that new sidewalk be constructed on the north side of Route 2 from Riddell Road to Zoar Outdoor. In addition, all existing sidewalks and curb-cut ramps will be reconstructed to achieve ADA compliance. Proposed traffic calming measures include sidewalk and crosswalk enhancements, "gateway" areas at the village center approaches, and improved signage and landscaping. The project is scheduled to begin construction in 2019.



General Pierce Bridge, Greenfield/Montague

General Pierce Bridge, Greenfield/Montague

The General Pierce Bridge over the Connecticut River is a critical link between Greenfield and Montague, Franklin County's two most populous communities. The bridge is routinely closed for emergency repairs, and it was recently posted to prohibit fire trucks, which will have a significant impact on emergency response times between the two communities. It is listed for rehabilitation in the MassDOT Capital Improvement Plan at approximately $15-20 million, and construction is expected to begin by 2021.

Intersection Improvements at Main Road, Jacksonville Road (Route 112), and Greenfield Road, Colrain

This project proposes to reconstruct this three-legged unsignalized intersection to improve traffic flow & sight distance, and improve pedestrian accommodation in the Colrain village center. Proposed work includes reconstructing the intersection and its approaches and creating an accessible network of sidewalks, ramps, and crosswalks to link popular village center locations. The project will include approximately half a mile of new sidewalk, with landscaping and "streetscape" elements to promote pedestrian mobility in the village. It is scheduled for construction beginning in 2020.

Conway Street, South Street, and Conway Road Reconstruction, Buckland

This project will reconstruct and widen 1.7 miles of municipally owned roadway, including 1,100 feet of sidewalk reconstruction to achieve ADA compliance. The project will also include curb repairs and drainage upgrades to improve sub-grade and surface water runoff. It is scheduled for construction beginning in 2021.

Intersection Improvements on Route 2 at Colrain Road and Big Y, Greenfield

The closely-spaced intersections of Route 2 at the entrance to Big Y and Route 2 at Colrain Road have been identified as high crash locations and were the subject of a Road Safety Audit in 2014. This project involves the installation of a new traffic signal at the Big Y entrance and reconstruction of the existing traffic signal at Colrain Road, as well as shoulder widening, new sidewalks and wheelchair ramps, pavement markings, drainage, and signage. The project is scheduled to begin construction in 2022.

Route 112 Shoulder Improvements, Buckland

The section of Route 112 in Buckland between North Street and the Buckland Recreation Area, which includes the Mohawk Trail Regional School, a middle- and high-school, currently has narrow shoulders and no accommodations for bicycles or pedestrians traveling to the school or recreation area. This MassDOT project proposes to widen the existing shoulder to accommodate bicycles and pedestrians with a buffer protecting them from roadway traffic. It is currently scheduled for construction in 2022.

North Main Street Reconstruction, Orange

North Main Street in Orange is a narrow, sloping roadway with poor pedestrian accommodation to the Elementary Schools. The proposed project begins on North Main Street at the School Street intersection and ends at the intersection of Lincoln Avenue and consists of roadway reconstruction, construction of ADA accessible sidewalks and wheelchair ramps, rehabilitation and reconstruction of various retaining walls and two major drainage culverts, and other drainage system modifications and improvements. The project is scheduled to begin construction in 2023.

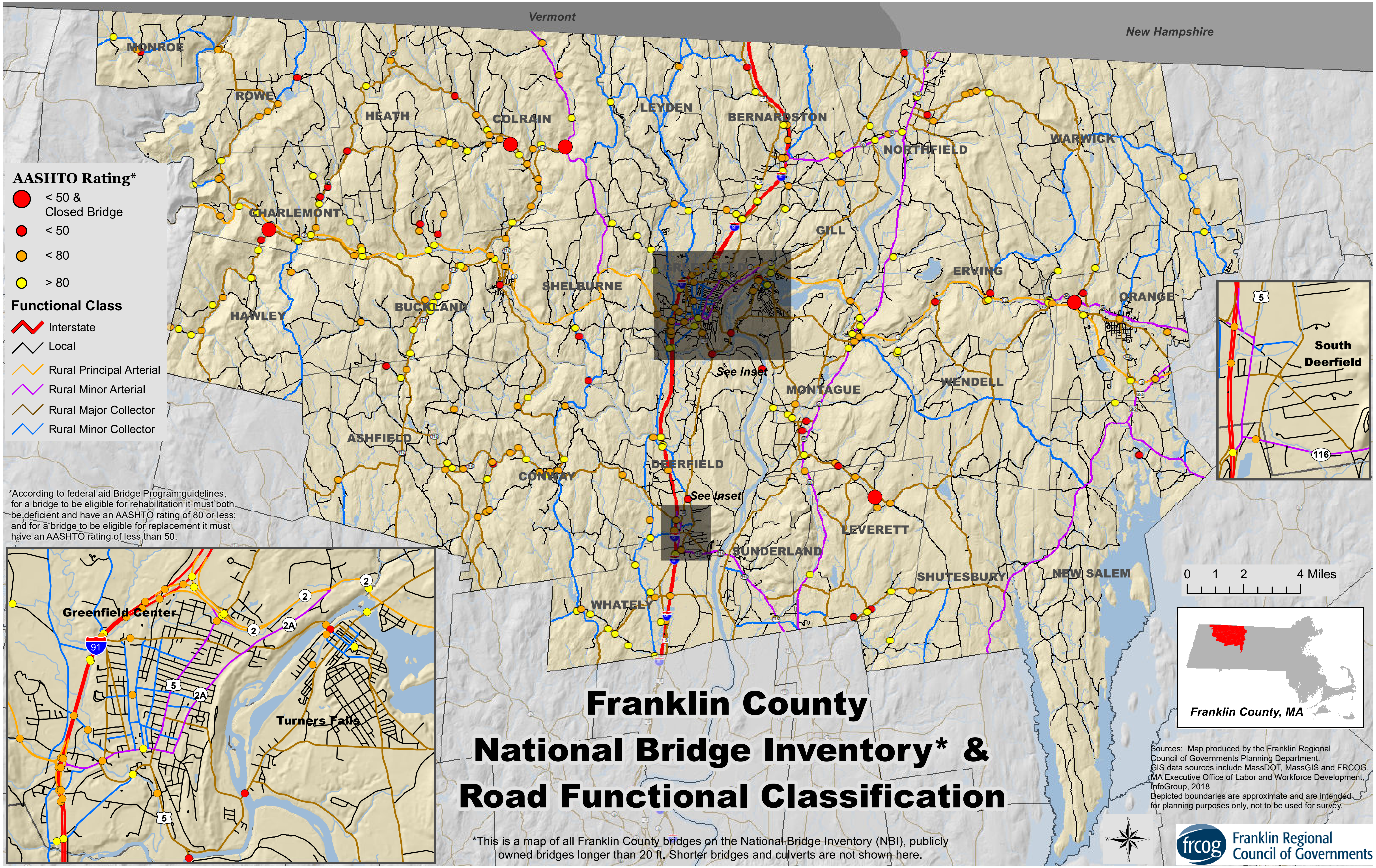
Wisdom Way Reconstruction, Greenfield

Wisdom Way in Greenfield is the primary access to the Franklin County Fairgrounds, the oldest active fairgrounds in Massachusetts. The roadway is supported by a retaining wall that has failed and is at risk for collapse. This project will reconstruct the retaining wall and roadway from River Street to the Fairgrounds and will incorporate a new separated shared use path for bicycles and pedestrians, as well as improvements to the River Street intersection. The project is proposed for construction in 2024.

Recommendations for Road and Bridge Infrastructure

- Evaluate culverts and assist Towns with planning small bridge and culvert repairs or MassWorks projects.
- Monitor data for roadway safety and infrastructure performance measures.
- Continue to staff the Route 2 Task Force and advocate for the advancement of additional safety improvements.
- Continue to implement a Pavement Management Program to advise towns on pavement repair strategies and project prioritization.
- Update the Most Hazardous Intersections report using the next set of available data.
- Continue conducting Road Safety Audits and support projects to address safety issues in the region.
- Continue to work with Towns to identify and advance eligible roadway projects for the Transportation Improvement Program.

Construction on Bridge in Franklin County



Franklin County
National Bridge Inventory* & Road Functional Classification

AASHTO Rating*

- 🔴 < 50 & Closed Bridge
- 🔴 < 50
- 🟠 < 80
- 🟡 > 80

Functional Class

- Interstate
- Local
- Rural Principal Arterial
- Rural Minor Arterial
- Rural Major Collector
- Rural Minor Collector

*According to federal aid Bridge Program guidelines, for a bridge to be eligible for rehabilitation it must both be deficient and have an AASHTO rating of 80 or less; and for a bridge to be eligible for replacement it must have an AASHTO rating of less than 50.

*This is a map of all Franklin County bridges on the National Bridge Inventory (NBI), publicly owned bridges longer than 20 ft. Shorter bridges and culverts are not shown here.

Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
MA Executive Office of Labor and Workforce Development, InfoGroup, 2018
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

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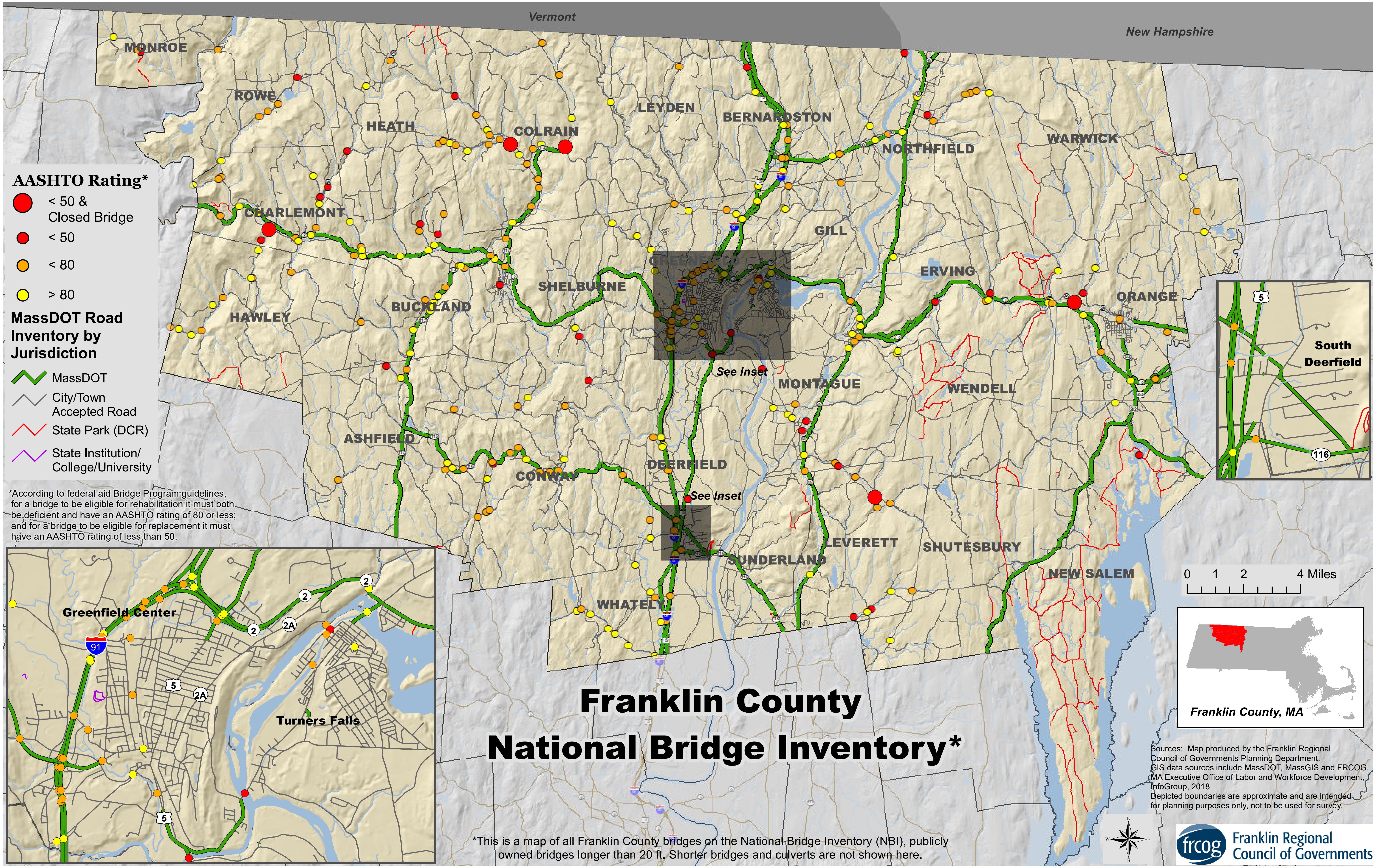
Franklin County National Bridge Inventory*



AASHTO Rating*

- 🔴 < 50 & Closed Bridge
- ● < 50
- ● < 80
- ● > 80

MassDOT Road Inventory by Jurisdiction

- MassDOT
- City/Town Accepted Road
- State Park (DCR)
- State Institution/ College/University

*According to federal aid Bridge Program guidelines, for a bridge to be eligible for rehabilitation it must both be deficient and have an AASHTO rating of 80 or less; and for a bridge to be eligible for replacement it must have an AASHTO rating of less than 50.

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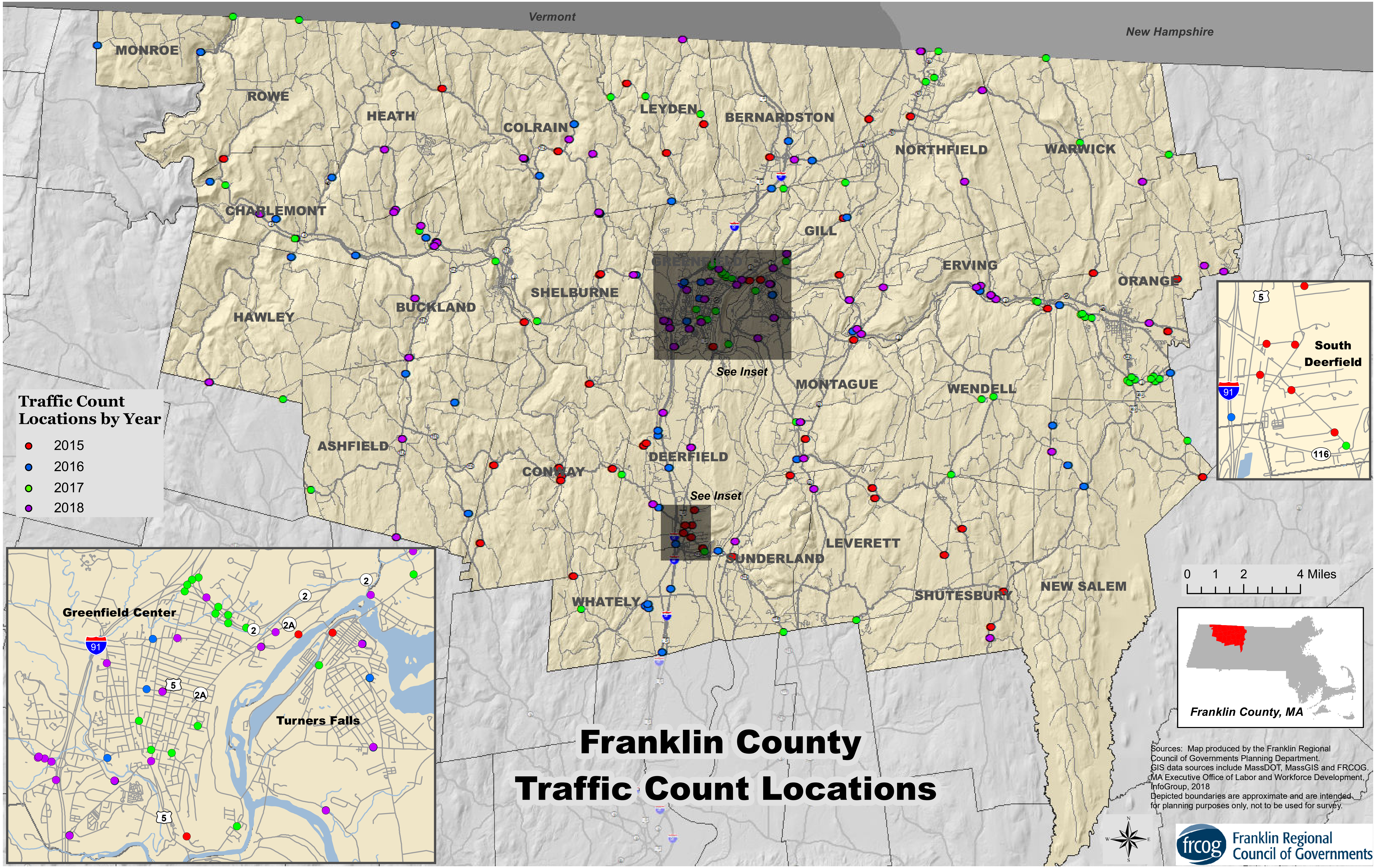


Traffic Count Locations by Year

- 🔴 2015
- 🔵 2016
- 🟢 2017
- 🟣 2018

Franklin County
Traffic Count Locations

Sources: Map produced by the Franklin Regional
Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
MA Executive Office of Labor and Workforce Development,
InfoGroup, 2018
Depicted boundaries are approximate and are intended
for planning purposes only, not to be used for survey.

Franklin Regional
Council of Governments

6

Freight Transport

2020 Regional Transportation Plan

6 Freight Transport

Freight transportation is an important issue for Franklin County. The accessibility and efficiency of freight transport plays a vital role in the economy and viability of the region. Most of the freight and goods coming to and from Franklin County are being transported by truck; however, a significant amount of freight that travels through the County is being hauled over its three main rail lines. This chapter will discuss freight transport to, from, and through the region by truck, rail, and air. This chapter will consider opportunities to improve the safety and efficiency of freight movement in the region and will also discuss the transport of hazardous materials in Franklin County.

Current Plans

MassDOT completed the *Massachusetts Freight Plan* in April 2018 that comprehensively examines the state's freight transportation system. This Plan addresses all modes of freight transportation and presents a plan for future improvements. The Plan proposes strategies to improve infrastructure assets, reduce congestions and bottlenecks, improve safety, and mitigate climate change impacts to and from the freight system; as well as performance measures to track success.

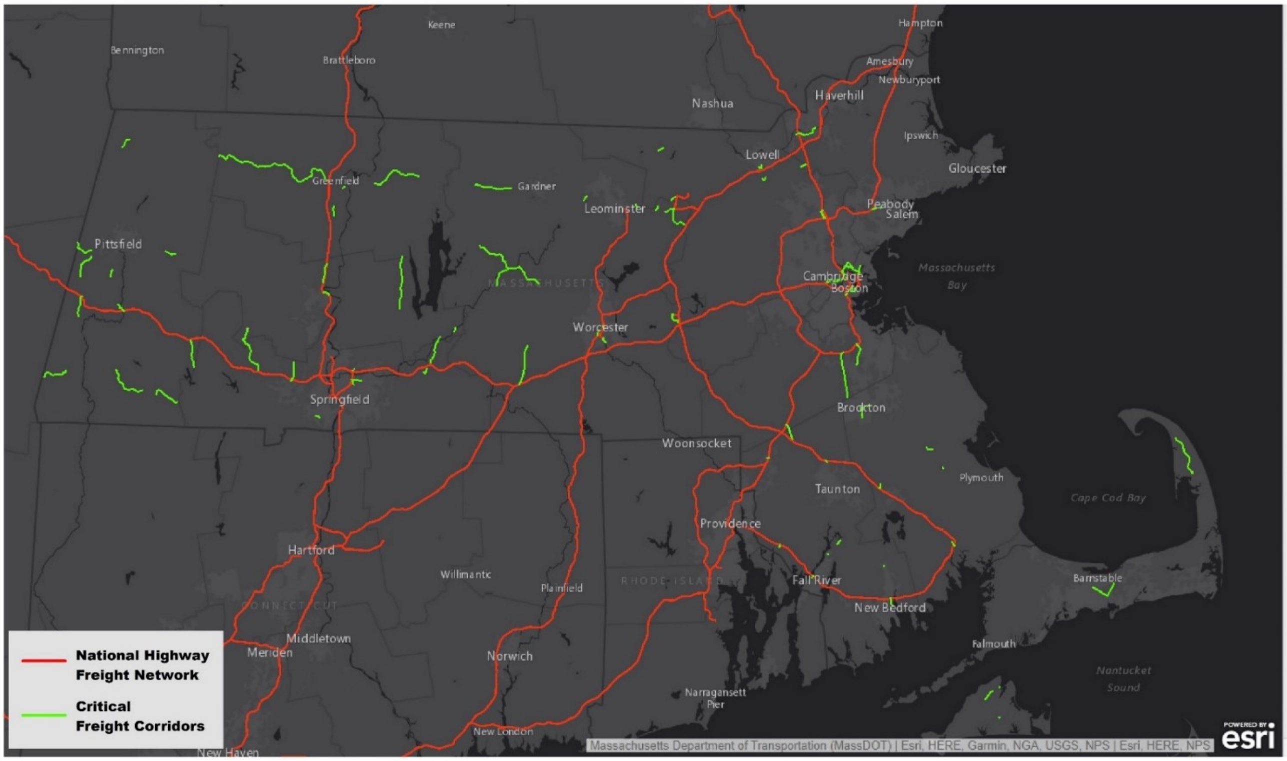
In 2013, the FRCOG conducted an assessment of the movement of goods in the region. This, *Overview of Freight Movement in Franklin County*, examined the current state of freight movement in the region and outlined the potential challenges and opportunities faced by freight in Franklin County. It found that as freight shipping increases in the future, special attention should be paid to the impacts of that on adjoining land uses with respect to potential negative effects from emissions, noise, and the transport of hazardous materials. These impacts apply to both roadway and rail freight shipping.

Existing Conditions

Corridors

MassDOT collaborated with Metropolitan Planning Organizations, including the Franklin County Transportation Planning Organization, in 2017 to identify the critical urban freight corridors (CUFC) and critical rural freight corridors (CRFC) to include in the National Highway Freight network. The National Freight Network roadways in Massachusetts, including CUFCs and CRFCs, are shown in Figure 6-1 and the identified CUFC and CRFC in Franklin County are listed in Table 6-1.

Figure 6-1
Massachusetts Freight Corridors



Massachusetts Department of Transportation (MassDOT) | Esri, HERE, Garmin, NGA, USGS, NPS | Esri, HERE, NPS

Table 6-1: Critical Rural and Urban Freight Corridors in Franklin County

Critical Rural Freight Corridors			
Town	**Roadway**	**Start**	**End**
Charlemont / Shelburne / Greenfield	Route 2	Florida / Charlemont Town Line	Shelburne Road, Greenfield
Erving / Wendell / Orange	Route 2	Old State Road, Erving	Wendell / Orange Town Line
Deerfield	Greenfield Road	North Hillside Road	Wapping Road
Deerfield	River Road	0.21 mi west of McClelland Farm Road	McClelland Farm Road
Deerfield	McClelland Farm Road	River Road	Gardner Freight Yard
Critical Urban Freight Corridors			
Town	**Roadway**	**Start**	**End**
Greenfield	Route 2	Shelburne Road, Greenfield	I-91 (Interchange 26)
Greenfield	Greenfield Rotary	SR2 WB Off-ramp	I-91 SB On-ramp
Orange	Route 2	Wendell / Orange Town Line	Mile Marker 66.24

Major Freight Modes

Trucking

Currently, 90% of all freight movement by weight and 75% of all freight by value in Massachusetts occurs by truck. Although there is no County-specific data available, this statistic is most likely higher for the Franklin County region which is more rural and as a result relies more heavily on trucking, especially for the “last mile” of delivery. The major trucking corridors in Franklin County are: Interstate 91 (which runs north-south) and Route 2 (which runs east-west). These two highways also represent the busiest travel corridors in the region for non-commercial traffic. Other active truck routes in the region include Routes 5/10, Route 47, Route 116, Route 63, and Route 112. There are several truck parking facilities on most of the major routes in Franklin County. There are parking facilities located on Route 2 West (Charlemont, MassDOT Park & Ride), Route 2A (Greenfield, MassDOT Visitors Center), Route 116 (Sunderland), I-91 (Bernardston and Whately), and Route 5/10 (Whately). The Whately facility is located at the Whately Diner on Rt. 5/10, which is a full amenity truck rest stop with parking, refueling, showers, and food available.

Freight Rail

Franklin County has approximately 93 route miles of railroad, which are broken down into two north-south routes, one east-west route, and an east-west connector at the East Deerfield Rail Yard. This rail yard is one of the largest rail yards in New England. The map at the end of the chapter shows the location of the East Deerfield Rail Yard and the different railroad lines in Franklin County. There are three other active minor rail yards in the County in South Deerfield, Shelburne Falls, and Millers Falls.

Air Transport

There are two public airports in Franklin County, located in the Towns of Orange and Montague; however, neither of these airports provide air freight service. The closest locations for freight transport are Bradley International Airport, located near Hartford, CT, the Worcester Regional Airport in Worcester, MA, and Logan International Airport in Boston, MA. New York City’s major airports – LaGuardia Airport, J.F.K. Airport, and Newark Airport – also provide air freight services and are used by some shippers in the Franklin County region.

Freight Trucking

In order to provide safe and efficient transportation routes for trucks to and through the region, it is important that the region’s infrastructure and systems are continually evaluated for possible deficiencies or constraints. The following projects are major improvements that have been planned or have been recently completed with the goal of advancing the safety and efficiency for both general and freight highway transport.

Route 2 East Improvements

Several major improvements have taken place or have been planned for Route 2, the major east-west trucking corridor in Franklin County. Route 2 East refers to the stretch of Route 2 from Greenfield to Phillipston. Several projects along this section have been recently constructed, are underway, or have been designed. These improvements focus on overall traffic safety and efficiency, as well as the relationship between freight trucking and non-commercial traffic.

A recent improvement on Route 2 East is the reconstruction of the intersection of Route 2 and Route 2A in Erving. The intersection was realigned to improve sight distance and turning lanes were added to improve traffic flow. Rumble strips were installed in the roadway to reduce traffic speeding. Other Route 2 East improvement projects are planned in the Erving Center and Farley sections of Erving, which are detailed in Chapter 13 – Safety and Security.

Route 2 West Improvements

Improvement projects have also been completed, designed, or explored for Route 2 West, which in Franklin County spans from Greenfield through Charlemont. A number of issues related to the safe and efficient movement of freight by trucks on Route 2 West were identified, particularly that heavy loaded trucks travel up the mountain at much slower speed than other vehicles. This, combined with a lack of a wide shoulder or breakdown lane, lead to faster vehicles passing trucks by crossing the roadway centerline. Improvements have taken place to address some of these issues, including revised pavement markings to widen the shoulder and allowing trucks to use the shoulder as a climbing lane, but further exploration and funding is needed to address all of the identified problems.

Successful past improvements on Route 2 West include the redesign of the Greenfield Rotary at Interstate 91, the implementation of a shoulder climbing lane on Greenfield Mountain, and the reconstruction of the intersection of Route 2 and Colrain/Shelburne Road in Shelburne. Future improvements currently programmed include reconstruction of Route 2 in Charlemont Village Center, and signal improvements on Route 2 at Colrain Road and Big Y in Greenfield. These improvements are expected to improve safety for all travel modes, including the accommodation of freight.

Challenges to Freight Trucking

Aside from Route 2, there are other locations in Franklin County that present challenges to freight trucking and may need improvements. Listed below are a few specific constraints associated with freight trucking in the region:

- Bank Row, Greenfield: The roadway clearance height of this railroad underpass is 12 ft - 4 in., forcing freight trucks to avoid this central artery to downtown Greenfield. At least once a year, trucks have struck this bridge despite warning signage. An overheight vehicle detection system could alert truck drivers to take an alternate route before they reach the overpass. This site has not yet been identified as a priority bridge improvement.
- Turners Falls Road, Montague: Trucks traveling north on Turners Falls Road have difficulty turning onto Turnpike Road, encroaching on other travel lanes. This intersection has not yet been planned for improvements.
- Montague City Road and Cheapside Street intersection, Greenfield: There is a low railroad bridge at the curve where Montague City Road and Cheapside Street intersect. The low bridge limits truck access to the nearby industrial area, and as a result, trucks often need to use long alternative routes. Options such as raising the bridge or lowering the road would pose significant challenges. Another option is widening the sharp curve. This intersection needs further study before improvements can be planned.
- General Pierce Bridge, Greenfield: Local trucking companies have expressed concern with the current weight limit on this bridge, which is 36 tons. For larger trucks that exceed this, they must use an alternate route on Mountain Road, which was not designed for large trucks. To resolve this conflict, there are two options. The first is to raise the railroad bridge on Cheapside Street to 13 ft - 6 in. The other option is to increase the weight limit on the General Pierce Bridge, when it is rehabilitated, to 49 tons. This bridge is currently under preliminary design for a major rehabilitation, with work scheduled to begin in 2020.
- Iron Bridge, Shelburne Falls: The bridge separating the Towns of Shelburne and Buckland in Shelburne Falls is an historic iron bridge that was rehabilitated in 1997. Its low clearance prevents larger trucks from accessing the Buckland side of Shelburne Falls from Route 2/Maple Street. Trucks must travel further west on Route 2 and enter Buckland via State Street to avoid being stuck at the Iron Bridge. An overheight vehicle detection system, supplemented by better signage and better information provided by GPS companies are needed to help freight trucks access the correct side of Shelburne Falls by the correct exit from Route 2.

Scenic Byways

Another issue related to freight transport involves the region's many scenic byways and the fact that these scenic byways are located on roadways that also serve as major trucking routes. There are five designated scenic byways that run through the County. Scenic byways represent travel corridors with unique scenic, cultural, and tourism value. Although no significant changes in freight trucking routes are recommended at this time, the special characteristics of scenic byways needs to be taken into consideration when planning improvements for these roadways. For more information on Franklin County's scenic byways, please refer to Chapter 11: Scenic Byways and Tourism.

Transportation of Wide Loads

The increasing interest of renewable energy powered by wind has a potentially significant impact on the type and number of wide loads passing through the region. Franklin County, especially the western portion of the County, and neighboring Berkshire County are rich in wind resources. The wind turbines are constructed on-site with very large prefabricated components ranging from 115 to 160 feet in length and must be transported via roadway to often remote areas. For comparison, the average 18-wheeler tractor-trailer ranges in length from 70 to 80 feet in length from the front of the cab to the end of the trailer.

Many of the wide-load trucks cannot be accommodated on most roads in Franklin County, or much of New England. The wide loads are larger than one lane width and therefore can crowd other vehicles, forcing them aside as they pass through. The Commonwealth of Massachusetts Commercial Motor Vehicle Center is responsible for permitting the transportation of non-reducible loads, also referred to as "wide-loads."

If a transporter wishes to move a load of twelve feet or more in width over state highways, they are required to apply for a "daily trip" permit. For "super-loads" (over 130,000 pounds), MassDOT must conduct a full structural analysis of the planned roadway to ensure that the roads and bridges can handle the weight and size of the load. The impacts of the transportation of wind turbines include the construction of temporary roads leading to the final sites, increased traffic (not just wide-loads) associated with the construction of the projects, and traffic flow disruption. When a wind generation facility is being planned in the region, these factors should be addressed.

Freight Rail Transport

While the vast majority of freight is shipped by truck in New England, MassDOT has projected that the amount of rail freight shipments will double over the next 20-30 years. This increase could have a significant impact on Franklin County as two major New England rail lines pass through the region.

Rail Lines

As highlighted earlier, Franklin County has 93 route miles of railroad, including two north-south routes and one east-west route. There is a map of the rail lines at the end of this chapter. The north-south routes are the Connecticut River Main Line (owned by the Commonwealth of Massachusetts) and NECR Main Line (owned by New England Central Railroad). The east-west line is the Patriot Corridor route for Pan Am Southern. This route runs along Route 2 and follows the Deerfield and Millers Rivers. A small east-west/north-south connector, the East Deerfield Route, is also owned by Pan Am Railways.

Patriot Corridor: (also known as the Freight Main Line) is the most important rail line in the Commonwealth of Massachusetts – serving up to 5 million tons annually of freight between eastern Massachusetts and eastern New York (near Albany) at Rotterdam Junction. It provides an important link for the paper and lumber industries in northern New England and Canada. There are two east-west rail lines in Massachusetts (the other roughly follows the Massachusetts Turnpike), but this route has less severe grades because of the 4.75 mile long Hoosac Tunnel that runs through, rather than over, the Berkshire Mountains. While the Hoosac Tunnel is an important advantage for this line, it does limit the freight capacity that can be hauled due to tunnel height restrictions (19’6”).

This rail line is owned by Pan Am Southern (PAS), which is a joint venture between Norfolk Southern and Pan Am Railways (PAR) that was formed in 2008. A part of this joint venture included the rehabilitation of 138 miles of track, replacement of ties, and the addition of over 35 miles of new rail between Ayer, MA and Mechanicville, NY. These improvements, which began construction in 2009, allow for increased freight capacity to be transported with a higher 286,000 pound weight limit and first generation double-stack capability. The improvements also increased track speeds. This joint venture created another Class I freight railroad in Massachusetts, allowing for increased competition.

Connecticut River Main Line: This rail line is owned by the Commonwealth of Massachusetts. The Commonwealth (MassDOT) purchased the rail line in 2014 from Pan Am Railways (PAR). The Line has connections to the NECR rail line in Northfield. This line is now carrying Amtrak passenger service with a stop in Greenfield at the John W. Olver Transit Center. This service was made possible due to funding received from the 2010 American Recovery and Reinvestment Act (ARRA), which funded track improvements and passenger platform construction along the line. The track improvements also allow for greatly increased speeds along this line for freight traffic.

NECR Main Line**:** This rail line is owned by New England Central Railroad (NECR), which is a Class III railroad. The line is composed of 53 miles of right-of-way between Monson and

Northfield. It has a major rail facility located in Palmer in Hampden County, where it interchanges with CSX. The line also interchanges with the Connecticut River Main Line in Northfield and Montague in Franklin County. These large numbers of connections makes this line competitive with the national rail system. This line is also a major north-south corridor for the New England region, connecting Canada with Connecticut and New York. Average annual freight rail tonnages is 1.3 million tons, much of it composed of lumber products and lime slurry shipped from Canada.

Rail Yards

There are limited public railroad loading areas suitable for transloading in Franklin County. A transloading facility refers to a terminal where freight is transferred from one mode to another. Transloading facilities enable companies that are not located along rail lines to combine lower cost rail hauling with truck delivery. Typical goods that move through transloading terminals include: lumber, sheetrock, plastic pellets, bulk paper rolls, pipes, and bulk liquids such as fuel oil.[1] Modern transloading facilities are accessible to major highways, have many tracks, covered warehousing, and room for storing and moving tractor-trailers. While Franklin County does not have a transloading facility, following is an inventory of the rail facilities in Franklin County and a general evaluation of each facility's potential for transloading freight.

- East Deerfield Rail Yard: The East Deerfield Rail Yard, located off River Road, is partially owned by the Commonwealth (MassDOT), but is subject to permanent easement for railroad uses by Pan Am Southern. The rail yard is located on the Patriot Corridor that travels east-west and is connected to the Connecticut River Main Line that travels north-south. The yard is approximately one and a half miles long and a half-mile wide. It has the capacity to sort and hold up to 900 rail cars per day. Approximately 600 to 900 cars pass through the yard on a daily basis. The rail yard is used primarily as a classification yard for trains coming from the Pan Am north-south and east-west main rail lines. There are several public unloading tracks, and other tracks with the potential for public unloading. Only one track appears to be used for unloading now, primarily for unloading sodium chloride. The East Deerfield Rail Yard is located between two rivers (the Connecticut and Deerfield) on the east and west, wetlands on the north, and a residential neighborhood on the south. The road access to the rail yard was improved in 2003 as a result of a project that increased bridge clearance at the

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[1] Indus-Rail Co., Preliminary Report Freight Diversion Study, conducted for the Franklin Regional Council of Governments, 1999, p. 5.

River Road bridge. This helped immensely in providing direct road access from the facility to the Route 5/10 corridor and Greenfield. The Deerfield Master Plan (2000) suggested that the rail yard could be an appropriate location for a future transloading facility. The rail yard was used for some transloading of freight historically. A modern transloading facility would require additional storage space and equipment at the rail yard, but is feasible for the site. One result of a new transloading facility would be increased traffic in and out of the rail yard. Another concern of expanding the facility is the potential for contamination and adverse impacts on the natural resources in the vicinity, including the Deerfield River (located ¼ mile west from the rail yard) and the Connecticut River (located ¼ mile east and ½ mile to the north of the yard).

- South Deerfield**:** There is a small rail facility in South Deerfield, off of Elm Street and Tine Drive. The facility has two public unloading tracks and a small amount of use. The access is poor to both tracks and there are no storage capabilities. The site was used for small-scale transloading historically, but would likely not be suitable for a larger-scale facility now.

- Millers Falls**:** The Millers Falls rail yard is located off of East Main Street, at the junction of two major railroad lines, the NECR and the PAR. The yard includes a disconnected facility with a dock and ample trailer storage on the PAR side. NECR has three public railroad tracks used for unloading sodium chloride with poor track access and limited trailer storage.

Rail Sidings

In 2013, the FRCOG conducted an inventory of rail sidings in Franklin County. Rail was once historically very important to the local economy. As a result, the County has a number of rail sidings that have been constructed along the currently active rail lines in the region. Prior to this project, the FRCOG did not know how many sidings existed or where they were located. For the Inventory, the FRCOG compiled a table of all existing sidings by rail line and direction with accompanying map. The FRCOG also created a second table with a list of all properties that have the potential for either accessing adjacent rail sidings or developing new sidings. Both of these tables can be used for understanding the potential of freight movement by rail in the County and also to promote economic development in the region.

Challenges to Freight Movement on Rail

Idling Issues Next to Residential Uses

Train locomotive idling is a recent issue that Franklin County has encountered, particularly in the Millers Falls rail yard where residential land uses closely abut the rail yard. Train locomotive idling occurs when trains are stationary, either at railyards or on the tracks or track sidings, and do not turn off their engines. Locomotive idling is necessary to some extent for a variety of reasons including weather conditions, safety testing, and car checks in which power is needed. The state of Massachusetts has a 30 minute locomotive idling limit. While a locomotive idles, air and noise pollution occur, which can be harmful and disruptive to neighboring land uses. There are ways to minimize the idling and its effects, such as using cleaner diesel fuel or various locomotive technologies, such as Auxiliary Power Units (APUs) which are small diesel-powered generators that maintain many locomotive systems within required parameters when the engines are turned off. These technologies are not always applicable and locomotives must sometimes idle for longer periods of time.

Safety of At-Grade Crossings

The upgrades to the Connecticut River Main Line to accommodate the return of Amtrak have allowed speeds to increase from an average 10 miles per hour to a much faster 70-75 miles per hour. As a result of these dramatically increased speeds, MassDOT conducted evaluations of all of the at-grade road-rail crossings to ensure that they are properly equipped with warning devices that will provide adequate safety for crossing vehicles with the higher train speeds. The FRCOG also provided recommendations at specific crossings where there may be pedestrian and bicycle activity. Because there is such a large increase in speed, the performance of these warning devices should be continually monitored. Maintenance and repair of grade crossing warning device equipment is the responsibility of the railroad owner. The Federal Railroad Administration has established minimum inspection requirements for railroad maintenance of the warning systems, and each operating railroad is responsible for inspecting crossing system signals and equipment. There are a number of private road crossings in Franklin County that are not required to have any warning devices. The much higher speeds on this line may warrant attention to this gap. Current improvements to the Freight Main Line by Pan Am Southern should also include an evaluation of safety measures at the at-grade crossings. The speeds on this line are not expected to increase as fast as the Connecticut River Main Line, but any changes should be assessed for safety.

Safety of Freight Movement

Transport of Hazardous Materials

In August 2010, the Franklin County Regional Emergency Planning Committee (REPC) completed the creation of a Regional Hazardous Materials Emergency Plan (HMEP) with support from the FRCOG. The HMEP serves several purposes, including compliance with the statutory requirements that all regional Emergency Planning Committees develop, exercise, and annually review a Hazardous Materials Emergency Plan. Also, no regionally focused planning tool had previously existed to describe and analyze hazardous threats in Franklin County. Third, a regional plan was needed to standardize Hazardous Materials release reporting, notification, and response.

The HMEP is updated annually. Among the HMEP's priorities is addressing the potential issues associated with the freight transport of hazardous materials and having an emergency plan for hazardous material spills. The HMEP assumes that virtually all railway and road corridors transport hazardous materials at some times and that, consequently, any rail line or roadway can be a potential hazardous material spill site.

A significant transportation change since the original 2010 HMEP report is the increase in ethanol transport by rail through the County. The Patriot Corridor has been identified by the Massachusetts Emergency Management Agency (MEMA) as a potential primary rail route to carry Ethanol-85, which requires different fire suppression equipment and methods for extinguishing than for gasoline-fueled fires.

In July and August of 2018, the FRCOG conducted an observational study of the transport of hazardous materials by rail and by truck. The number of vehicles carrying hazardous materials, and the placards that identify the types of hazardous materials transported by each vehicle, were recorded and summarized. The results of the study are shown in Table 6-2 and Table 6-3.

Hazardous Materials Transported by Rail

A total of 34% of all rail cars observed during the study period were carrying hazardous materials. Most of them were traveling southbound on the Connecticut River Main Line or eastbound on the Patriot Corridor.

A majority (82 rail cars or 65%) of the hazardous materials being transported were classified as "1075", which is liquefied petroleum and is extremely flammable. An evacuation area of at least a half-mile downwind of an accident is recommended for this type of material.

The other most common hazardous material being transported (although only observed on the Patriot Corridor) is "3257," which is an elevated temperature liquid at or above 100 degrees Celsius or above its flash point. A total of 38 cars or 29% were carrying this during the study period. In Franklin County, this is typically hot asphalt, but could include other materials that fall under this classification. A "3257" material is considered highly flammable and an evacuation area of at least a half-mile is recommended.

Other materials observed in smaller quantities include:

- "1760" – is a corrosive liquid or compound and is toxic if inhaled, ingested, or contacted causing potential severe injury or death.
- "1830" – is sulfuric acid and is considered corrosive and/or toxic inhaled, ingested, or contacted causing potential severe injury or death.
- "2187" – is refrigerated liquid carbon dioxide and is classified as a non-flammable gas.

Table 6-2: Hazardous Material Transported by Rail in Franklin County, July-August 2018

Rail Line	Direction	Total Rail Cars	Total Cars Carrying Hazardous Materials
Connecticut River Main Line	Southbound	67	65 (97%)
	Northbound*	--	--
Freight Main Line/	Westbound	56	7 (13%)
Patriot Corridor	Eastbound	245	55 (22%)
NECR Main Line	Northbound	19	3 (16%)
Total		**387**	**130 (34%)**

*No trains were observed traveling north on Connecticut River Main Line during the study period.

Hazardous Materials Transported by Truck

The observational study of trucks was conducted on Interstate 91 and Route 2, as these are the primary trucking routes in the region. Specifically, the observation sites were the northbound and southbound Interstate 91 MassDOT weigh stations in Deerfield, at the Gill-Montague Bridge on Route 2 in Gill, and on Route 2 in Erving Center.

A total of 7% of trucks were carrying hazardous materials through Franklin County during the study period. Route 2 carried a slightly higher percentage of hazardous materials, 15%, compared to 5% on Interstate 91 northbound and southbound. Almost half of the hazardous materials that are transported on the highways by truck are composed of four types of materials, which are described below. The remaining materials varied widely.

The largest category of observed hazardous materials is classified as “1203.” Approximately 15% of trucks were carrying this on both Interstate 91 and Route 2. This material is gasoline and is highly flammable, with a recommended evacuation area of at least a half-mile downwind of an accident.

FRCOG staff observed 11% of trucks carrying “3257” materials, which is an elevated temperature liquid at or above 100 degrees Celsius or above its flash point. In Franklin County, this is typically hot asphalt, but could include other materials that fall under this classification. A “3257” material is considered highly flammable and an evacuation area of at least a half-mile is recommended.

Nine percent of trucks were observed carrying “3082” materials, which is classified as an environmentally hazardous liquid. It may burn, but not ignite readily and is harmful if inhaled or contacted. An evacuation area of at least a half-mile is recommended if it is involved with a fire. The other materials that were being hauled on Franklin County roads include substances that are flammable, nonflammable gases, explosive, and/or corrosive.

Table 6-3: Hazardous Material Transported by Truck in Franklin County, July-August 2018

Roadway	Direction	Total Trucks	Total Trucks Carrying Hazardous Materials
Interstate 91	Southbound	153	8 (5%)
	Northbound	395	24 (6%)
Route 2	Both directions	97	15 (15%)
Total		**645**	**47 (7%)**

Chemical Incident Exercises and Response

The Franklin County Regional Emergency Planning Committee (REPC) provides Hazmat trainings and exercises to emergency responders and local community leaders throughout Franklin County to meet local and state training requirements.

In September 2016, the REPC planned and executed a hazardous materials exercise in Whately. This was a joint effort between the Franklin County and Hampshire County REPCs. This exercise brought together 50 responders from fire, police, EMS, communications, and emergency operation center personnel to test their skills and coordination when responding to a chlorine spill.

In September of 2017, the REPC planned and conducted a Hazardous Materials Operations and Safety Course. This 8-hour course included the proper procedures for identifying hazardous materials by placard or pipeline marker; using proper terminology to discuss chemical and physical properties of hazardous substances; identifying different vulnerabilities in containers; predicting dispersion patterns of released materials; and instructing how to properly use self-contained breathing apparatus, among other topics. This advanced course allowed the individuals to bring their knowledge back to their departments to assist in making hazmat incidents safer for the whole community and to train and advise those that could not attend.

In 2019 the REPC will be conducting a hazard and vulnerability threat assessment of hazardous materials in Franklin County. This project will produce an updated Hazard Assessment section of the current Franklin County Hazardous Emergency Plan. This update will include an assessment of the routes hazardous materials travel to meet their destination.

The REPC also conducts annual tabletop exercises, primarily focused on scenarios involving the spilling of ethanol. These types of preparedness activities help create a regional response that is timely and well-coordinated.

Recommendations for Freight Transport

- Continue to assist with the current and planned improvement projects on Route 2 East and to monitor how they impact freight trucking.
- Continue to work with local communities and highway officials to address safety concerns related to trucks transporting wide loads through Franklin County.

- Continue to monitor and assess the transport of hazardous materials in the region and to develop, update, and coordinate plans with the Regional Emergency Planning Committee and appropriate agencies for responding to a hazardous materials spill.
- Conduct a study to assess which roadway crossings of rail lines are potentially hazardous, and to recommend changes to improve the safety of these locations.
- Rehabilitate the General Pierce Bridge with an increased weight limit of 49 tons to make truck shipping through the region more efficient and safe.
- Evaluate the options of improving the low-clearance overpasses on Bank Row in Greenfield, at the Montague City Road and Cheapside Street intersection in Greenfield, and the Iron Bridge in Buckland ad Shelburne, including installation of overheight vehicle detection system.

Franklin County Massachusetts

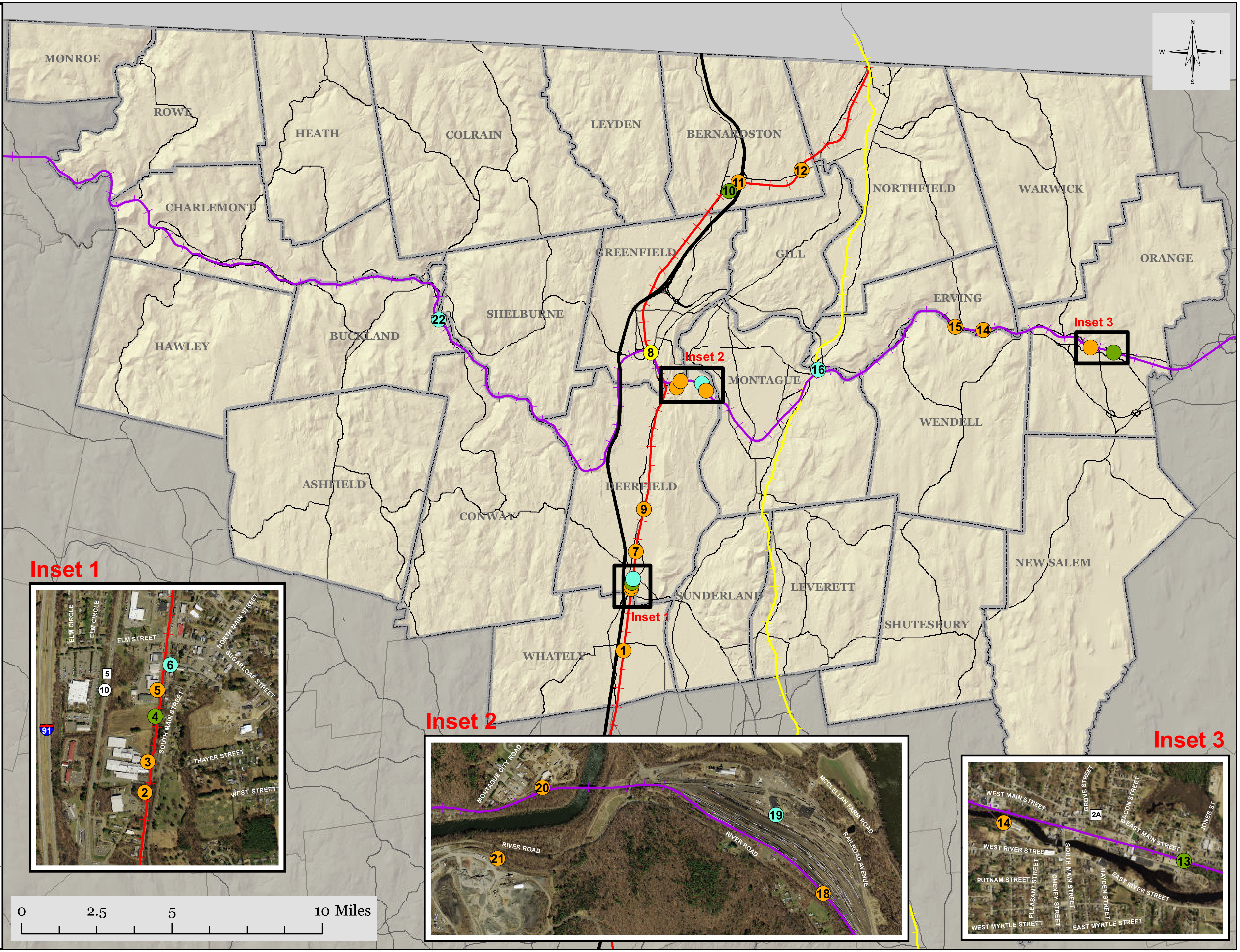
Rail Sidings Inventory

- ● **Railyard**
- ● **Passenger Rail Stop**
- ● **Rail Siding present**
- ● **Site for potential rail siding access or development**
- ┼ **Connecticut River Main Line**
- ┼ **East - West Freight Main Line/Patriot Corridor**
- ┼ **NECR Main Line**
- — **Major Road**

ID	Abutting Parcel Description
1	Yankee Candle Company
2	Harris Rebar
3	Atlantic Furniture
4	Yankee Candle Company (field)
5	Crop Production Services
6	South Deerfield Unloading Area
7	Channing Bete Company
8	JWO Transit Center
9	Welch (farmstand)
10	Priority Development Site Lot 1
11	Kringle Candle Company
12	CaroVail
13	Rodney Hunt-Fontaine, Inc.
14	Former Erving Paper/Cereal Factory site
15	Erving Industries
16	Former Usher Mill site
17	Millers Falls Railyard
18	Pan Am Southern
19	East Deerfield Rail Yard
20	wTe Recycling Inc
21	Trew Stone/All States Materials Group
22	Shelburne Falls Railyard

Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments



7

Passenger Rail

2020 Regional Transportation Plan

7 Passenger Rail

Railroads have a long and proud history in Franklin County dating back to the 1840s. In 1920, there were four separate railroad companies offering freight and passenger service to several towns in Franklin County, and as many as seventy trains a day operated in all directions. Today, Amtrak, the national passenger rail corporation, operates one round trip train per day through Franklin County. "The Vermonter" makes stops in Greenfield each afternoon on its travel between Washington, D.C. and St. Albans, Vermont.

Existing Conditions

Connecticut River Main Line Passenger Rail

Historically, passenger rail service in Western Massachusetts traveled north-south along what is known as the Connecticut River Main Line. This line roughly parallels Interstate 91 and the Connecticut River from New Haven, CT to St. Albans, VT and beyond. During the 1980s, due to a series of unresolved disputes regarding track maintenance, Amtrak relocated service away from the Connecticut River Main Line, traveling inland from Springfield, MA to Palmer, MA, where it turned north and rejoined the Connecticut River Main Line in East Northfield, MA. This detour added approximately 25 minutes to each one way trip, and removed direct service to Franklin County.

Inaugural run of the first passenger train to return to Greenfield on December 29, 2014.

However, in 2014, Amtrak returned the Vermonter service to the Connecticut River Main Line, with stops in Springfield, Holyoke, Northampton, and Greenfield once per day in each direction. This restoration was funded by a 2010 $70 million award in federal stimulus funding to the Commonwealth to make improvements to the Connecticut River Main Line. The improvements included crosstie and rail replacement, rehabilitation of grade crossings, reactivation of passing sidings, upgrading of switches and signals, and improvements to bridges. The restored alignment cuts 25 minutes per trip and adds stops in Greenfield, Northampton, and Holyoke. These improvements allow passenger rail service to operate at up to 80 mph through the region, and allows freight trains to operate at a much faster speed of 40 miles per hour, rather than the previous 10 miles per hour. The rerouted Vermonter began service on December 29, 2014. The train now arrives in Greenfield twice a day (once in each direction) at the John W. Olver Transit Center.

The Vermonter is heavily subsidized by the Vermont Agency of Transportation, MassDOT, and the Connecticut Department of Transportation. It travels between Washington D.C. and St. Albans, VT via Philadelphia, New York, and Springfield. This route used to connect to Montreal, Canada, first by train, and later by bus. However, in 2004, the connecting bus service to Montreal was discontinued. As a result, the Vermonter service no longer provides a connection to Montreal. However, regional leaders are making progress in reconnecting Montreal with passenger rail service. The main factor in preventing access to Montreal has been border crossing issues, but significant progress has been made on this front.

Current Activities and Future Planning

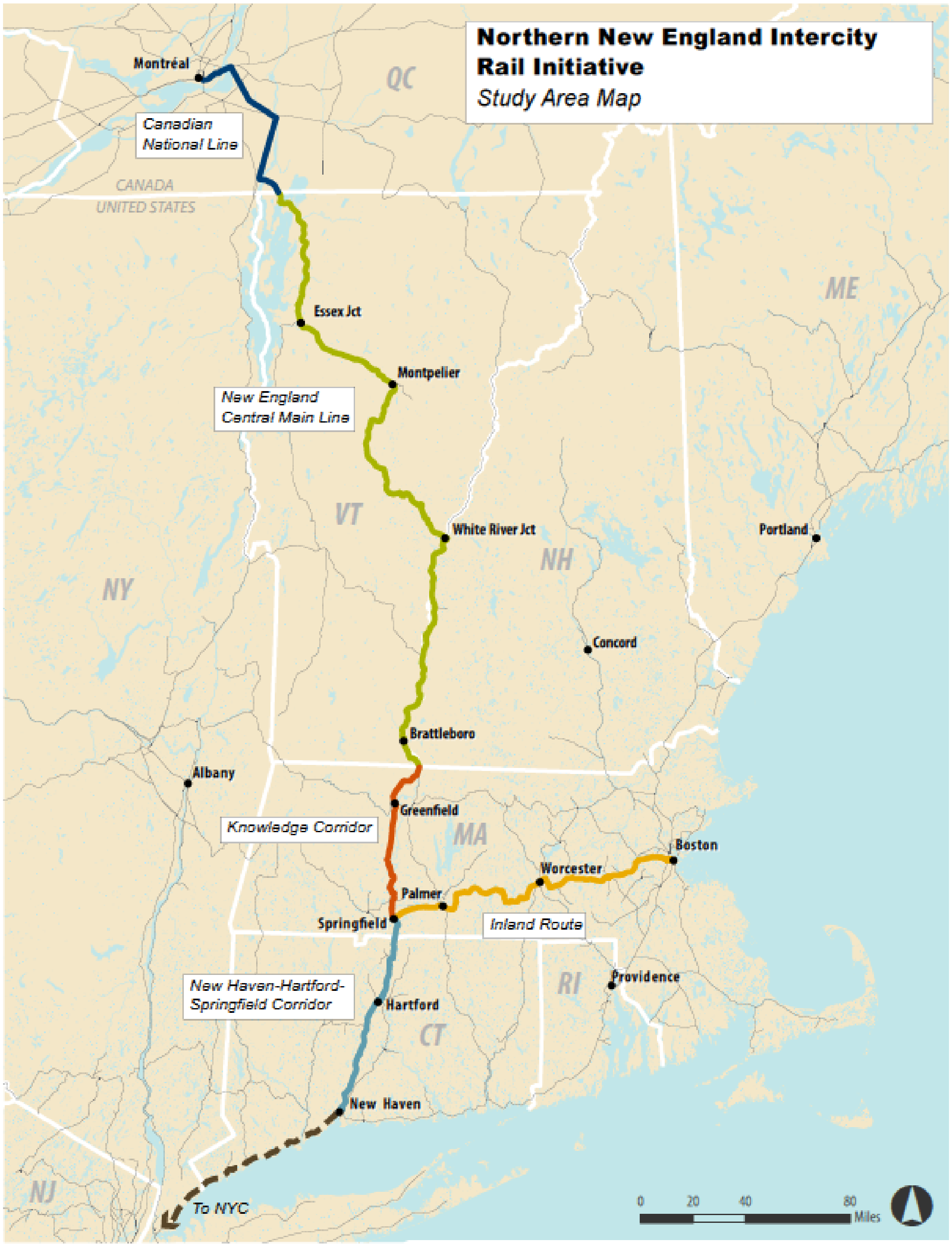
New England Vision for High Speed and Intercity Passenger Rail

In 2009, the six states in New England came together to create a Vision for a future regional rail system that will enhance New England in many ways, including providing a foundation for economic competitiveness, promoting livable communities, and improving energy efficiency and environmental quality. The Vision is based around a high speed rail network that will link major cities in New England with smaller cities and rural areas and internationally to Montreal. This high speed rail network is composed of a few key corridors as shown in the map on the following page. Significant investment and infrastructure improvements to the existing rail lines along these corridors have been made or are under active exploration.

Northern New England Intercity Rail Initiative

Massachusetts, Vermont, and Connecticut were partners in the Northern New England Intercity Rail Initiative (NNEIRI), which was a study to examine the opportunities and impacts of more frequent and higher speed passenger rail service in the three states. Specifically, the

Massachusetts Department of Transportation (MassDOT) and Vermont Agency of Transportation (VTRANS), in collaboration with the Connecticut Department of Transportation (ConnDOT) and the Federal Rail Administration (FRA), examined two major rail corridors known as the Inland Route and the Boston-to-Montreal Route. The Inland Route corridor links Boston and Western Massachusetts via Worcester and Springfield, MA and then travels southerly from Springfield to New Haven, CT connecting to the larger Amtrak Northeast



Corridor. The Boston to Montreal corridor is the same as the Inland Route between Boston and Springfield. From Springfield, the rail corridor then runs northerly following the Connecticut River Main Line into Vermont and ending at the Montreal Central Station in Quebec. The goals of the NNEIRI Study, which includes the entire 470-mile corridor between Boston, Springfield, New Haven, and Montreal, were to:

- Evaluate ridership potential;
- Identify environmental effects; and
- Create service development plans for both corridors.

The NNEIRI evaluated three "Initial Build Alternatives" and a "No Build Alternative" for potential passenger service along the Inland and Boston-to-Montreal Routes. They included variations of speeds, equipment, and track engineering, and only included train upgrades within the current rail right-of-way. After evaluating these alternatives, the study proposed in 2015 a "Draft Build Alternative Service," which recommended:

- Top speeds of 75 mph;
- No express service between major cities (local service only);
- 8 round trips between Boston and New Haven (via Springfield);
- 1 round trip between Boston and Montreal (via Springfield);
- Double-tracking between Worcester to Springfield; and
- Additional Vermont sidings.

Next steps of the NNEIRI study have not advanced as outlined because attention in Massachusetts has turned toward a stronger desire for passenger rail service between Springfield and Boston. This does not mean that there is lack of interest in making the connections to New Haven and Montreal, however. Connections between Springfield and New Haven have already increased with the launch of CT Rail Hartford Line (see entry further in this chapter), and planning to make the international connection to Montreal continues.

East-West Passenger Rail Study – Pittsfield, Springfield, Boston

MassDOT is underway with a study exploring passenger rail service between Pittsfield, Springfield and Boston. MassDOT and the MBTA own the rail corridor between Worcester and Boston, which has expanded commuter rail service to 58 trains per day in both directions. However, the tracks between the New York border and Worcester are owned by CSX, a private freight company. CSX runs approximately 14 freight trains a day from New York to Worcester. Expanding passenger rail service along this segment will either require MassDOT to acquire the right-of-way, or enter into an agreement with CSX. Both options will likely be complicated and time consuming. Currently, service in the corridor is provided by Amtrak via the Lake Shore Limited, which runs two round trips per day connecting Boston and Chicago.

Unlike the NNEIRI study that examined potential rail upgrades within the existing rail corridor, the East-West Rail Study recognizes that the current alignment has many curves that cannot accommodate high speeds. Therefore, this study is looking at potential improvements in three scenarios: 1) a shared passenger/freight corridor without right-of-way changes; 2) a shared passenger/freight corridor with selected right-of-way changes; and 3) a completely separate corridor running along I-90. Each scenario has its pros and cons ranging from the smallest capital investment required, to the fastest possible travel time.

The next step of the study is to determine six alternatives that include information on travel times, projected ridership, capital investment requirements, and an understanding of the potential benefits and impacts.

East-West Passenger Rail Study – North Adams, Greenfield, Boston

State Senator Jo Comerford introduced legislation in 2019 to study the feasibility of restoring passenger rail service between North Adams, Greenfield and Boston. The rail corridor runs along Route 2 in the Northern Tier of Massachusetts and supported passenger rail service until 1968. The study will look at the costs and economic opportunities of establishing rail services between eastern and western Massachusetts along this northern route. The costs to be studied include projected capital costs, operating costs, and revenue estimates. Projected ridership levels, community impact and benefits, and environmental impacts will also be evaluated. Approval of this study still has a number of legislative steps to clear before it can begin. However, it is hoped that the study will begin after the completion of the east-west study that is being conducted for the Pittsfield and Springfield to Boston route.

Surveys and public outreach for this RTP show strong demand for passenger rail service from Greenfield to Boston. A recent question on social media gauging interest in this type of service received over 500 positive responses in a 24-hour period, many with lengthy personal stories about the difficulties people have accessing educational, employment, medical, and recreational opportunities in the capital city.

The east-west rail line is owned and maintained by PanAm Southern, a joint venture between Pan Am Railways and Norfolk Southern, that is currently upgrading its facilities for better freight movement along this corridor known as the Patriot Corridor. Passenger rail service from Boston's North Station currently terminates in Fitchburg at the new Wachusett Station that opened in 2016. Establishing passenger rail service from Greenfield to Boston would potentially involve connecting to Fitchburg, at which point travelers can access regular MBTA commuter rail service into the city.

The proposed East-West route between North Adams, Greenfield, and Boston is not currently included in the New England Vision for High Speed and Passenger Rail, but these new developments highlight the importance and potential of such a route. Work should be undertaken to have the vision amended and the route included as a viable and vital link in the network.

New Haven-Springfield Commuter Rail Implementation

Part of the Vision for the New England High-Speed and Intercity Rail Network is the New Haven-Springfield commuter rail line. Formal planning for improvements to this corridor began in 2005, and culminated in the launch of CT Rail's Hartford Line on June 16, 2018. The new service increases the number of weekday trains from 12 to 34 per day. The Hartford Line operates up to 110 mph, making travel time between Springfield and New Haven as little as 81 minutes. From New Haven, there is direct connecting service to New York City, Boston, and other points on the eastern seaboard.

Additional elements implemented as part of this service upgrade included:

- Reinstalling 24.5 miles of double track in existing single track locations;
- Increasing the number of rail stations served by rail from 8 to 13;
- Incorporating high-level platforms and grade-separated pedestrian facilities at all stations;
- Improving the existing station in Windsor Locks to accommodate bus transfers from the station to Bradley International Airport; and
- Revising local bus routes to provide bus service to the rail stations.

Springfield-Greenfield Regional Commuter Rail

With the expanded New Haven to Springfield Commuter Rail Service up and running, attention has turned toward expanding service on the Connecticut River Main Line between Springfield and Greenfield. The FRCOG has been working with MassDOT, the Pioneer Valley Planning Commission, local mayors, and other stakeholders to launch additional pilot service, anticipated to begin in the Fall of 2019. Currently, one round trip per day operates out of the John W. Olver Transit Center in Greenfield. Amtrak's Vermonter arrives at the station southbound at 1:30 pm and northbound at 4:30 pm., seven days a week. Estimated to cost approximately $1 million a year in operating, the expanded pilot service would use existing Amtrak trains to add two round trips per day on weekdays, and an additional round trip per day on weekends and holidays. While the exact times of the new service are not yet firm, the planning assumption to date is that there will be two southbound trips in the early morning (approximately 6 am and 8 am), and two northbound trips at night (approximately 10 pm and midnight) on weekdays. Weekends and holidays will have an additional southbound trip around 9:30 am, and an additional northbound trip around 7:30 pm. These trains will also stop in Northampton and Holyoke, prior to their stops in Springfield.

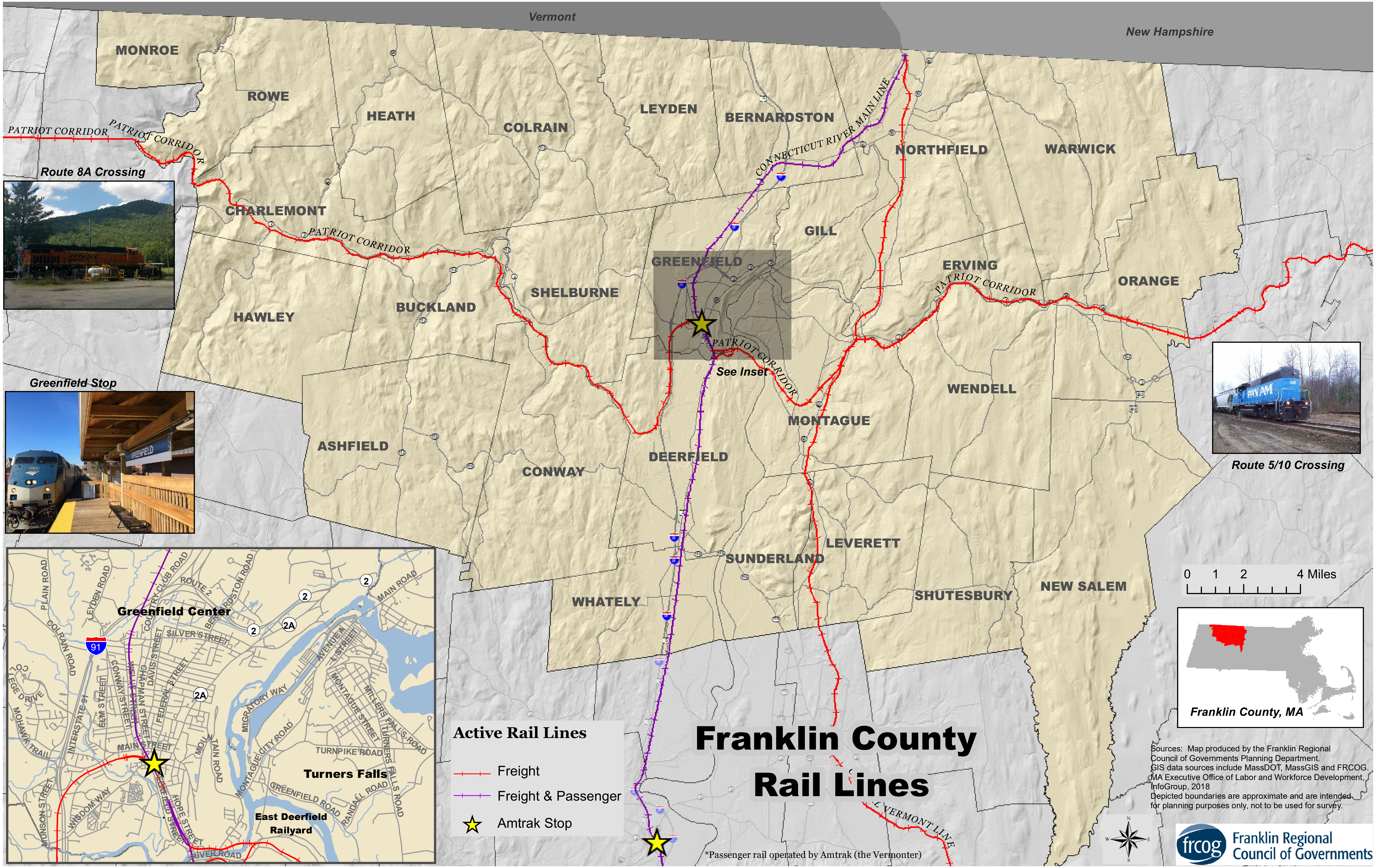
Since relocation of Amtrak's Vermonter back to the Connecticut River Main Line tracks in 2014, ridership has continued to climb for western Massachusetts stations. Total 2018 ridership on the Vermonter reached 96,696 passengers, with almost a third of that (32,378 riders) coming from western Massachusetts stations. In fact, ridership at stations in Springfield, Holyoke, Northampton and Greenfield nearly doubled from 2014 to 2018, growing from 17,916 to 32,378. Of the 32 stations along the Vermonter route from St. Albans, VT to Washington D.C., the top city pair for ridership and revenue is New York City to Northampton, MA. Greenfield to New York City comes in 6th of the 32 stations. The second and third most popular destinations from Greenfield are Philadelphia and Washington D.C, respectively.

While the proposed service expansion times will not support typical commuting opportunities in western Massachusetts as originally hoped, it will provide the ability for Franklin County residents to travel to New York City and back in the same day. Currently, the train schedule requires an overnight in the city before you can return. This is a significant move, allowing opportunities for employment and recreation not previously accessible to Franklin County residents by train. Numerous comments received through outreach for this RTP development indicated a desire for better intercity passenger rail connections, particularly to New York City, to enhance work and recreational opportunities. Should the pilot prove to be successful and expanded service becomes permanent, future planning efforts should focus on additional runs that could serve regional employment and workforce commuting within the Pioneer Valley.

One area of concern expressed frequently by stakeholders and potential riders is for fare equity when using the service. The fares on CT Rail's Hartford Line are heavily subsidized by Connecticut, making travel affordable and consistent for users of the service. There are fears that the expanded pilot service between Springfield and Greenfield will not be as successful as possible because its fares are not in line with CT Rail prices and, thus, not competitive with service to the south. There are also concerns that without fare equity many potential low income riders will be priced out of the service. On-going work to establish fare equity will continue through the planning and launch of the pilot service expansion.

Recommendations for Passenger Rail

- Continue to coordinate and advance the implementation of a pilot program to expand passenger rail service between Greenfield and Springfield along the Connecticut River Main Line, and advocate for fare equity in its operation.
- Continue to advocate for north-south service along the Connecticut River Main Line that supports regional employment and workforce commuting.
- Continue to participate in the East-West Rail Study exploring passenger rail service between Pittsfield, Springfield and Boston that will benefit western Massachusetts residents and businesses.
- Continue to support efforts to launch an East-West Rail Study linking North Adams, Greenfield and Boston bringing employment, educational, medical and recreational opportunities to Franklin County residents.
- Continue to work with the other New England States to support and assist in creating the New England high speed and intercity rail vision, and advocate for inclusion of a Massachusetts Northern Tier east-west route in the vision.
- Continue to support the implementation of the Boston to Montreal route identified in the Northern New England Intercity Rail Initiative study, giving passenger rail access of Montreal to western Massachusetts residents and businesses.



Active Rail Lines

- Freight
- Freight & Passenger
- ☆ Amtrak Stop

Franklin County Rail Lines

*Passenger rail operated by Amtrak (the Vermonter)

Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
MA Executive Office of Labor and Workforce Development, InfoGroup, 2018
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments

8

Airports

2020 Regional Transportation Plan

8 Airports

There are two public-use airports located in Franklin County. They are the Orange Municipal Airport in Orange and Turners Falls Airport in Montague. A map showing the locations of these airports is located at the end of this chapter. These public-use airports benefit the region in several ways. Primarily, local airports are part of a national air transportation system, which provides intermodal connections and alternatives for fast, efficient transportation of people and goods. The economic benefits of local airports include supporting existing businesses and attracting new businesses by providing convenient access to and from the area. Local airports also provide public safety services, such as emergency medical air transportation. In addition, the popularity of aviation-related recreational activities, such as parachuting, generates tourism activity that brings many visitors to the area.

According to the Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems, both the Turners Falls and Orange Municipal Airports are classified as “general aviation” airports. General aviation airports provide facilities for privately owned personal and corporate aircraft, and are also used for a variety of other aviation activities, such as flight instruction, charter services, aerial agricultural spraying, aerial photography, parachuting and similar activities. Both airports are expected to remain general aviation airports in the future, and are not expected to expand into commercial airports with scheduled passenger or freight service. At the same time, neither airport is at capacity, and both airports could accommodate increased business and flight activity.

Both airports are viewed as important economic resources for their towns and for the region overall. Both airports are located adjacent to industrial parks to facilitate and promote their use by local businesses. In Turners Falls, there is the 225-acre Airport Industrial Park. In Orange, there are two industrial parks, the 57-acre Orange Industrial Park to the east of the airport and the 59-acre Randall Pond Industrial Park to the west of the airport. While both the Airport Industrial Park and Orange Industrial Park are nearly built out, the Randall Pond Industrial Park has some vacant land that can accommodate new development. In addition, areas near the Orange Airport have been identified by the Town as a potential site for future industrial and/or commercial development.

The Orange Municipal Airport and the Turners Falls Airport are each directed by an Airport Commission with the day-to-day management by an Airport Manager. Airport Commission members are appointed by the Select Board. Both airports have engaged in long-term planning regarding improvements and expansions to their facilities and use, including activities to attract additional business.

An Airport Master Plan is a comprehensive study of a particular airport as it plans for its future growth and development. The community planning processes to create an Airport Master Plan involve coordination among the consultants preparing the plans, the Airport Commissions, municipal boards and officials, the general public, regional planning and economic development organizations, and State and Federal agencies.

Under the direction of the Airport Managers and Airport Commissions, the airports have each used a community planning process to create Airport Master Plans. The Orange Airport Master Plan was last updated in 2000 and is scheduled to be updated again in 2022. The Tuners Falls Airport released a Draft Master Plan Update in December 2018, and anticipates completing it in spring 2019. The Master Plan Update will replace the previous one completed in 1999. As part of the master planning process, an Airport Layout Plan (ALP) is prepared for each airport. An ALP is a detailed drawing of current and planned airport facilities. The planning process also includes the creation of a Capital Improvement Plan (CIP), which is a schedule of prioritized improvement projects with their estimated costs. An airport's CIP is updated annually to reflect completed projects and to prioritize future projects.

Improvements that are specifically aviation-related may be eligible for funding by the FAA's Airport Improvement Program (AIP). The purpose of the AIP is to provide assistance to public-use airports across the country to maintain a safe, secure, and efficient national civil aviation system. The costs for AIP eligible projects are divided between the FAA, the Massachusetts Department of Transportation (MassDOT), and local communities. The federal cost share of these projects is 90 percent, with MassDOT and the local airport sponsor each providing 5 percent. According to the FAA, eligible projects for AIP funding include improvements related to airport safety, capacity, security and environmental concerns. Projects not eligible for AIP funding include those for routine maintenance.

The Airport Safety and Maintenance Program (ASMP) of MassDOT provides funds for projects, such as routine maintenance, that are not eligible for AIP funding. Matching funds from the local sponsor (usually the municipality) are also required for ASMP projects. All airport improvement projects, whether AIP eligible or ASMP eligible, must be listed on a statewide CIP which includes the airport specific CIPs filed with MassDOT.

The economic benefit of the airports include the direct benefits of the activities on-site at the airport (such as airport workers' salaries), indirect benefits from off-site activities attributable to the airport (such as airport worker, pilot, and passenger spending), and a multiplier effect known as induced economic impact that results from the economic growth and activities induced by the airports' presence. Statewide economic impact studies of public use airports were completed in 2014 and 2019. The 2019 study found that these airports contributed over $24 billion to the Massachusetts economy, including $7.2 billion in payroll for over 199,000 jobs[1]. This 2019 economic output is a 49% increase from 2014.

This study also estimated the annual economic impact for each public use airport. For the Turners Falls Airport, it was estimated that it resulted in 30 jobs and $1.4 million in payroll and contributed $3.9 million in annual economic output. Compared to 2014, both the total number of jobs and the total annual economic impact doubled by 2019. The Orange Municipal Airport was estimated to result in 110 jobs and $4,2 million in payroll and contributed $11 million in annual economic output. The 2014 study estimated a 13.9 million annual economic output and 147 jobs. Despite the decreases in economic output and jobs, the Orange Municipal Airport continues as an essential transportation and economic asset for the region.

Recent and planned improvements at the Turners Falls and Orange Municipal Airports increase the utility and safety of these facilities, and address projected future aviation needs in the region. Improvements that enhance the quality of facilities for use by existing and prospective businesses can also contribute to the region's overall economic development. For example, some of the business growth at the industrial parks near the airports could be induced by the airports' facilities and services. The airport expansions and related business growth are not currently anticipated to generate significant levels of increased traffic on nearby roadways. However, the FRCOG will continue to monitor the impact of the airport projects on area traffic and area roadways, and to recommend improvements, if necessary, at a future date.

Orange Municipal Airport

Existing Conditions

The Orange Municipal Airport (airport code ORE) is the largest airport in the northwestern area of the Commonwealth. Located in the Town of Orange on the eastern edge of Franklin County, the airport is surrounded by two industrial parks, one on each side, and by forest land. The airport property abuts Route 2 and its entrance is approximately two miles from this highway. As mentioned previously, the Orange Municipal Airport is classified as a general aviation airport, which provides facilities for personal and corporate aircraft, and offers a variety of aviation and aviation-related activities.

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[1] Massachusetts Statewide Airport Economic Impact Study Update, Executive Summary. MassDOT Aeronautics Division. January 2019.

Orange Municipal Airport Administration Building

The airport was built in 1929 as the Orange-Athol Airport. During World War II, the airport was significantly upgraded for potential military use. The airport's triangular runway configuration is a remnant of this update. Currently, the airport has two active runways. The third discontinued runway is now a taxiway.

The airport's primary runway is runway 01-19, which measures 5,000 feet long and 75 feet wide. The airport's secondary runway 14-32 measures 4,801 feet long and 75 feet wide. Both runways have an asphalt surface. The runways' lengths enable the Airport to accommodate a wider variety of aircraft than smaller airports in the greater region, such as in Turners Falls, Gardner, and Fitchburg. In addition, the Airport has both Jet and 100LL aviation fueling capability on-site, which can be an important feature for pilots choosing where to land.

Current airport tenants include two aviation maintenance facilities, flight instruction business, two flying clubs, and a prominent skydiving business, as well as non-aviation entities such as a solar power company, graphic design company, an antique gas and steam engine club, a municipal dog park, and youth recreation programs.

A good demonstration of how one aspect of the airport's use can be an economic driver for the region is the popularity of Jumptown, a parachuting club based at the Orange Municipal Airport and the nation's first commercial skydiving center. In recent years, it was estimated that 2,000 to 3,000 people annually parachute with Jumptown. It is estimated that approximately 3% of these people are from the North Quabbin region, while the rest travel from the Berkshires, the Boston metropolitan area, and neighboring states. As a result, Jumptown is a major attraction for visitors coming to the North Quabbin area. Not only do these visitors pay for Jumptown's services, they may also spend money to stay, eat, and shop at local businesses.

According to the Airport Manager, nearly all the major employers in the region consistently cite access to local airport transportation as one of their top considerations. The employers that use the airport range from locally based businesses to national corporations. In addition, the airport is also used by state and federal military and public safety agencies as well as by groups providing medical services.

The runways at the Orange Municipal Airport can accommodate virtually all types of general aviation including jet traffic operations. An "operation" is defined as a landing, takeoff, or touch-and-go procedure by an aircraft at an airport. According to the Airport Manager, the number of annual operations at the Orange Municipal Airport for 2018 was 35,060 per year. According to the Airport Manager, airports are a good barometer of the economy. A significant decrease in operations was experience during the recent economic recession (about 25,000 operations in 2009). Since that time, the number of operations have increased to be at or above pre-recession levels.

According to the FAA, there are different types of operations. Generally, a local operation is performed by aircraft that remain in the local traffic pattern or practice within a 20 mile radius of the airport. An itinerant operation is performed by an aircraft arriving from outside the area or leaving the airport area. Other operations include air taxi, which carries passengers or cargo for hire, as well as military and medical related operations. Table 8-1 shows the number of and type of operations conducted at the Airport in 2018.

Table 8-1: Orange Municipal Airport Operations by Type, 2018

Type of Operation	% of Total Operations
Itinerant General Aviation	45%
Air Taxi	31%
Local General Aviation	24%
Military	<1%

Source: Orange Airport Manager, March 2019.

As of September 2018, there were 62 aircraft based at the Airport. These aircraft are predominantly single-engine airplanes (94% of total aircraft), with some small multi-engine airplanes (6%), typically used for skydiving and charter activities or larger corporate aircraft. Multi-engine and larger corporate aircraft use of the airport has increased over the years and is expected to increase further. The Airport continues to expand its capacity for aircraft on the ground. The Airport currently has 30 hangars, which is four more than in 2006, and has more hangars planned.

Current and Future Activities

Over the years, the Orange Municipal Airport has continued to enhance its facilities and ability to serve airport users. Improvements have included: installing new security fencing, reconstructing Taxiway Delta, acquiring a new tractor, and completing an aeronautical airspace study. In the past ten years, over $8 million has been invested in construction, equipment and related technical studies for the airport, of which 98% was funded by federal or state grant programs.

The Airport Capital Improvement Plan identifies the priority construction projects to be undertaken in the next five years and that are eligible for federal funding (see Table 8-2). They reflect continued improvements to safety lighting and the reconstruction of one of the runways.
Future construction and planning projects are also listed in the Airport Safety and Maintenance Program. These projects are not eligible for federal funding but are eligible for state reimbursement for a percentage of the total project cost. These projects include necessary equipment, security fencing, and construction of a hangar, maintenance and administration buildings. Over $3 million in state funding has been obligated to fund the construction of a new administration building. In addition, an Airport Master Plan Update is

Table 8-2: Orange Municipal Airport Capital Improvement Program, FFY2019-FFY2023

Project (with expected federal fiscal year of the start of construction)	**Projected Total Cost**	**Federal Funding**	**State Funding**	**Local Funding**
Environmental assessment for Walnut Hill hazard beacon site (FFY2019)	135,000	121,500	6,750	6,750
Replace Runway 14-32 edge lighting system and regulator (FFY2020)	393,000	353,700	19,650	19,650
Purchase hazard beacon site (FFY2021)	210,000	189,000	10,500	10,500
Construct Obstruction Lights – Phase I (FFY2022)	1,000,000	900,000	50,000	50,000
Construct Obstruction Lights – Phase II (FFY2023)	1,000,000	900,000	50,000	50,000
Reconstruct Runway 01-19 (FFY2024)	4,900,000	4,410,000	245,000	245,000

Note: FFY = Federal Fiscal Year (October 1st through September 30th)

Source: Orange Municipal Airport, March 2019.

scheduled for fiscal year 2022, which would update the original Master Plan was completed in October 2000.

Table 8-3: Orange Municipal Airport Safety and Maintenance Program , FFY2019-FFY2023

Project (with expected federal fiscal year of the start of construction)	**Projected Total Cost**	**Federal Funding**	**State Funding**	**Local Funding**
Purchase Airfield Tractor and Attachments (FFY2019)	151,860	-	151,860	-
Airport Fencing Design and Permitting (FFY2019)	132,000	-	132,000	-
Install Security Perimeter Fencing - Phase II (FFY2019)	800,000	-	800,000	-
Culvert Replacement on Access Road (FFY2020)	582,500	-	466,000	116,500
Construct Aircraft Box Hangar (FFY2021)	950,000	-	760,000	190,000
Construct Electrical Work for Taxiway and Apron (FFY2022)	725,000	-	580,000	145,000
Airport Master Plan Update (FFY2022)	340,000		272,000	68,000
Construct Maintenance Building (FFY2023)	900,000		720,000	180,000
Construct Airport Administration Building (FFY2023)	3,500,000		3,325,000	175,000

Note: FFY = Federal Fiscal Year (October 1st through September 30th)

Source: Orange Municipal Airport, March 2019.

The Orange Municipal Airport property contains a diverse and unique mixture of grassland, farmland, and forest areas, which provide important habitats for a wide diversity of plant and animal species including a number of rare grassland birds. The Airport is well known as an important birding site in the region. The Town of Orange recognizes the wildlife value of the airport property, and has worked over the years with the Massachusetts Natural Heritage & Endangered Species Program, to ensure that the improvement and expansion projects do not negatively impact important habitats located on the site.

The Orange Municipal Airport property also contains a portion of an aquifer Zone II recharge area. The aquifer recharge area is strictly regulated in terms of drainage, stormwater discharge, and allowed developed land uses. Airport and town officials cooperatively recognize the sensitive environmental nature of this area, and as a result, the plans for future airport expansions and construction projects leave this area undisturbed.

Since 2004, the Airport has been financially self-sufficient, and does not rely on municipal subsidies for its operation. This self-sufficiency was achieved years earlier than initially projected and reflects the skilled management and numerous projects completed to update and expand the airport's infrastructure. This has resulted in growth in use and demand for the airport's facilities and services. An example of a facility improvement that has resulted in better service to pilots and increased revenues was the recent installation of a new self-service aviation fueling system. According to the Orange Airport Manager, the new system allows for access 24 hours a day and increased aviation fuel sales by 9% in the first six months of FFY19.

Located along the Route 2 corridor and within an easy drive of the Boston metro area, the Orange Municipal Airport has been able to attract a number of tenants and other airport users from eastern Massachusetts. There are other general aviation airports located east along Route 2 in Gardner and Fitchburg. However, the Orange Municipal Airport is the only public-use airport in the Route 2 corridor to have a 5,000-foot runway, a feature which allows it to serve a more diverse mixture of aircraft than other airports nearby.

Aerial view of the Turners Falls Municipal Airport

Turners Falls Airport

Existing Conditions

The Turners Falls Airport (airport code 0B5) is a general aviation airport located in the Town of Montague. The property is bordered by an industrial park, the regional vocational high school, and forest land. Interstate 91 and Route 2 are both within a close distance to the airport.

The Turners Falls Airport has one runway (Runway 16-34) and a parallel taxiway. The paved runway is 3,200 feet long and 75 feet in width, and can accommodate small single engine and multi-engine piston aircraft, and small jets such as the Cessna Citation. The runway approaches are visual. The Turners Falls Airport has a fixed base operator on-site that provides various services including maintenance, storage and fuel, as well as flight instruction.

Most of the current users of the Turners Falls Airport are recreational flyers. Students and families of students from the independent boarding schools in the region use the airport to travel between school and home. There are also some business-oriented travelers that use the airport to transport personnel between a local plant and corporate headquarters. Pioneer Aviation is located adjacent to the Airport property and runs a flight school and offers services for pilots.

The original Turners Falls Airport Master Plan was completed 1990 and updated in 1999. Recently, a Draft Airport Master Plan Update prepared by Gale Associates, Inc. was released in December 2018, with the final Plan anticipated for release in spring 2019. The comprehensive Update examined the historic trends and projected levels of use of the airport, and concluded with recommendations to extend the existing runway and upgrade various facilities.

Table 8-4: Turners Falls Municipal Airport Operations by Type, 2016

Type of Operation	% of Total Operations
Itinerant General Aviation	28%
Air Taxi	1%
Local General Aviation	71%
Military	0%

Source: Turners Falls Municipal Airport - Airport Master Plan Update, December 2018.

The FAA defines an operation as a landing, takeoff or touch-and-go procedure by an aircraft at an airport. According to the FAA's Terminal Area Forecast data[2], the annual operations at the Turners Falls Municipal Airport was consistently about 17,600 from 2008 through 2015. For 2016 and 2017, the average annual number of operations fell to approximately 16,620. The Airport Master Plan Update evaluates several factors, including population and economic projections, to forecast future aviation demand at the Airport over the next twenty years. The forecast for total operations in 2022, 2027 and 2037 is expected to continue at current levels.

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[2] Federal Aviation Administration, Terminal Area Forecast, February 2019, https://taf.faa.gov/.

Airport operations are currently split 71 percent local and 28 percent itinerant, with the remaining operations being air taxi or for other purposes. This ratio of local and itinerant is expected to continue. The predicted mix of local and itinerant operations is an important factor in determining how much short-term parking and long-term storage of based aircraft will be needed at the airport in the future.

The mix of aircraft using the Turners Falls Airport continues to be predominantly single-engine aircraft. As described in the Airport Master Plan Update, the annual mix of aircraft will be 80 percent single-engine, 10 percent multi-engine, 5 percent turboprop, 4 percent helicopter, and less than 1 percent jet.

As of 2016, the Turners Falls Municipal Airport had 30 aircraft based at the airport. Over the previous ten years, the number of based aircraft ranged from 35 in 2010 to 29 in 2015. One issue in increasing the number of aircraft based at the airport has been the limited amount of hangar space. The airport currently has private 8 hangars which can accommodate up to 22 aircraft. Two additional hangars are located on the adjacent Pioneer Aviation property, but are in poor condition according to the Airport Master Plan Update.

Entrance and sign to the Turners Falls Municipal Airport

Current and Future Activities

The Turners Falls Airport Master Plan Update includes forecasts for the number of aircraft to be based at the airport for 2022, 2027 and 2037. These forecasts consider historic trends specific to the airport as well as projected trends for New England. To project the number of aircraft based at the airport, high and low scenarios were developed. The Update recommends a modest (1.2%) growth rate for the number of based aircraft over a twenty-year timeframe; estimating that the number could rise from 32 aircraft in 2016 to 41 aircraft by 2037. As this demand requires, more tie-down spaces and/or hangar space would be needed.

A forecast for total annual operations and by type of operations (i.e. itinerant, local, etc.) were developed for 2022, 2027 and 2037. The FAA Aerospace Forecast for total operations and type of operations show a continuation of current levels. Possible alternative forecast scenarios show a possible decline in annual operations to a slight increase in operations. From the possible scenarios developed, the Update recommends an aviation demand forecast for planning purposes that assumes a continued level of operations and based aircraft.

It is proposed in the Airport Master Plan Update that a moderate increase in operations by larger aircraft could be achieved if the runway length were adequate to accommodate this type of aircraft. The Airport presently can only accommodate B-I general aviation aircraft (weighing 12,500 pounds or less). If the runway was expanded, it could accommodate all aircraft in the category of B-II general aviation aircraft (30,000 pounds in weight or less) with less than ten passenger seats.

Research conducted of airport use by local private boarding school parents and children indicated they use larger airports in the region to accommodate private plane travel. If the runway was extended, these operations could be shifted to the Turners Falls Municipal Airport which is significantly closer to these schools. There was no suggestion that the airport would attract and maintain bulk airfreight services in the foreseeable future due to its proximity to larger airports such as Barnes Municipal Airport in Westfield, Westover Metropolitan Airport in Chicopee, and the Orange Municipal Airport.

Based on past trends and projected forecasts, the Airport Master Plan Update provides a plan for future development of the Airport. The Update explains that an extension of the runway from its current 3,200 feet length to 4,200 feet, with corresponding improvements (such as an extended taxiway and turnaround area), would allow more small jets and turboprop aircraft to use the airport. The Update includes an evaluation of three development alternatives for future development. The recommended alternative proposes this runway extension and several other major development projects over a twenty-year period.

Projects identified in the Airport Master Plan Update will be included in the Airport's Capital Improvement Plan, which prioritizes projects eligible for federal and state funding, and the

Airport Safety and Maintenance Program, which prioritizes projects eligible for state funding. In addition to the extended runway related taxiway improvements, the Update includes projects to install an Automated Weather Observing System (AWOS) and constructing a new terminal, storage building and hangar facilities. The estimated cost to complete these projects would be approximately $8.6 million. The Update also recommends a regular schedule of maintenance and preservation treatments to extend the useful life of the runway pavement and the taxiways and taxilanes pavement until they are eligible for reconstruction funding. For example, the runway was last rehabilitated in 2009 and is not eligible for reconstruction funding until 2029. The projects are categorized by short-term, mid-term, and long-term improvements, which are in Table 8-5

The Airport property contains areas of environmental and archeological sensitivity. Areas on the property are designated as not to be developed. The Airport Layout Plan included in the Airport Master Plan Update appendix displays adjacent land to be acquired that would allow for expanded and improved facilities while avoiding impact to these sensitive areas. The proposed property acquisitions are also included in Table 8-5.

Airport Security

Since September 11, 2001, greater attention has focused on security at the nation's major airports. In Massachusetts, attention on airport security has included the state's smaller, general aviation airports as well. MassDOT oversees and regulates the 39 public-use airports in Massachusetts, including the Massachusetts Port Authority (MassPort) oversight of the Boston Logan International Airport, Laurence G. Hanscom Field, and Worcester Regional Airport. As noted previously, the two public-use airports in Franklin County are the Orange Municipal Airport in Orange and the Turners Falls Airport in Montague.

Since 2001, MassDOT established a number of policies and programs to increase airport security. MassDOT funded security enhancements at municipal airports including security fencing, access control systems, and video monitoring. MassDOT also implemented a statewide badge program for aircraft users and airport tenants, and all badges have been entered into centralized state database. Additionally, MassDOT requires each public-use airport to develop and implement an airport security plan, and that the plan be consistent with MassDOT security guidelines and regulations.

Both the Orange Municipal Airport and the Turners Falls Airport have created airport security plans for their facilities. They have both implemented the use of badges for aircraft users, and made security improvements onsite, including new perimeter fencing and gates at vehicle access points. Additional security measures undertaken at the Orange Municipal

Airport include coordinating with local law enforcement officials for increased patrols and greater awareness of airport security issues.

Table 8-5: Turners Falls Airport Planned Projects

Timeframe	Project	Total Cost
Short-Term (FFY 2018-2022)		
	Pioneer Aviation Property Acquisition	$900,000
	Charter NEX Films Property Acquisition	$20,000
	Taxilane Rehabilitation and Expansion	$695,000
Mid-Term (FFY 2023-2027)		
	Driveway Relocation and Parking Lot Construction	$550,000
	AWOS Installation	$595,000
	Perimeter Fence Construction	$620,000
	Runway 16-34 Extension by 1,000 feet with Taxiway Turnaround Area	$1,900,000
	SRE Storage Building Construction	$1,100,000
	Terminal Building and Restaurant Construction	$875,000
	West Apron Rehabilitation	$425,000
	Reservation of Land for Non-Aeronautical Use	$20,000
	Hillside Plastics Property Acquisition	$311,000
Long-Term (FFY 2028-2037)		
	Main Apron Reconstruction and Expansion	$505,000
	Corporate Hangar Construction	$750,000
	Taxiway Rehabilitation	$2,595,000
	Fuel Facility Construction	$325,000
	Nested T-Hangar Complex Construction	To be determined (privately developed)
	Taxilane Rehabilitation	$725,000
	T-Hangar, Access Road, and Parking Lot Construction	To be determined (privately developed)
	Hangar Complex Construction	To be determined (privately developed)

Note: FFY = Federal Fiscal Year (October 1st through September 30th), N/A = Not Available
Source: Turners Falls Municipal Airport Master Plan Update, December 2018.

Unmanned Aircraft Systems

The 2019 Massachusetts Statewide Airport Economic Impact Study Update notes the increased use of unmanned aircraft systems, commonly referred to as drones. The FAA requires operators of drones that weigh between 0.55 lbs. and 55 lbs. be registered and only flown in specific conditions, such as during the day, in the line-of-sight of the operator, in allowed airspace, and by operators who have passed a test. At this time, drones are not being used to transport people or goods in Franklin County. However, as both technology and business operations evolve this may change in the future. Currently in the region, drones are used for: high resolution video, aerial photography, multispectral imaging sensors (similar to infrared), and/or collecting data such as distance, area and volume for use in creating 3D models.

These services can be used for a variety of purposes, such as creating topographic maps, developing ecological assessment maps such as for wetlands or forest, studying riverbank erosion, inspecting infrastructure such as water tanks, or documenting construction progress. In addition, the use of drones have been effective in resiliency planning and responding to natural disasters, hazardous spills and other emergencies. Drones can be used to capture important information used for risk assessment, such as determining areas that may be more vulnerable to flooding or the status of critical infrastructure. After a disaster strikes, drones can capture images from varied vantage points to better view the damage and they can be sent to areas too dangerous for emergency personnel to enter. Based on this information, maps can be generated and decisions made in a timely manner.

In 2018, FRCOG conducted a public procurement process to secure engineering services for drone inspection tasks for use by the agency itself or its twenty-six member town governments. A primary, a secondary and a tertiary contract were awarded to three vendors for a three-year term and on an as-needed basis. By having these contracts in place, FRCOG has secured high quality services and reasonable pricing for these services, and importantly, FRCOG or a member town could quickly hire one of these vendors on very short notice if needed.

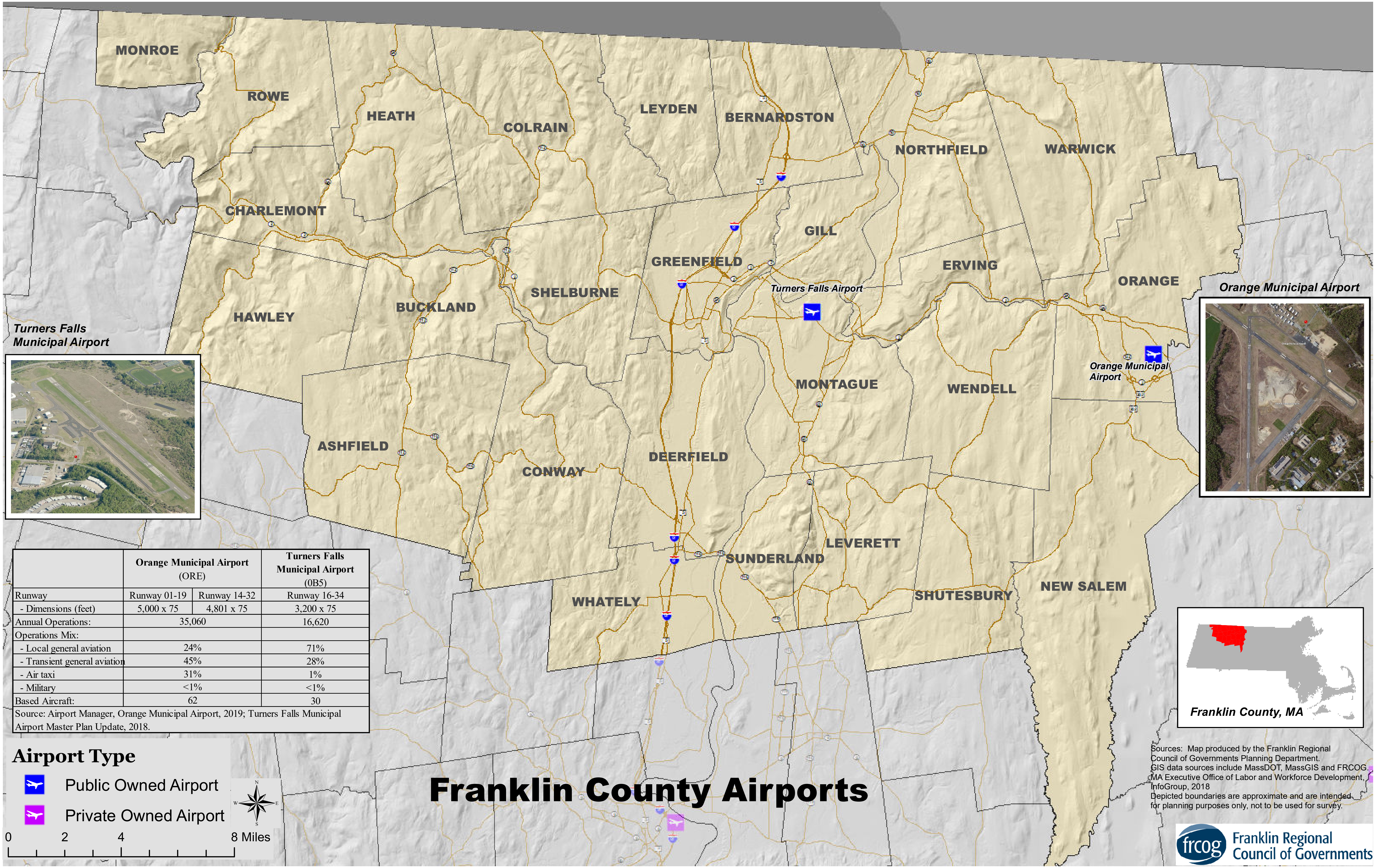
Recommendations

- Orange Airport Commission to complete short-term projects (within 0-3 years) which are included in the Orange Municipal Airport’s Capital Improvement Plan (CIP) or Airport Safety and Management Plan (ASMP), such as completing an environmental assessment for a hazard beacon site, replacing runway lighting, installing the second phase of perimeter fencing, and constructing an aircraft box hangar.
- Orange Airport Commission to implement mid-term projects (within 4-6 years) which are included in the Orange Municipal Airport’s CIP and ASMP, such as constructing obstruction lights, reconstructing Runway 01-19, and constructing a maintenance and administration buildings.
- Orange Airport Commission to complete the Orange Airport Master Plan Update in FFY2022.

- Montague Airport Commission to complete short-term projects (within 0-3 years) which are in the Turners Falls Airport's Airport Master Plan Update, such as acquiring the adjacent Pioneer Aviation and Charter NEX Films properties, and rehabilitating and expanding the taxilane.
- Montague Airport Commission to implement mid- term projects (within 4-6 years) and long-term projects (beyond 6 years) which are in the Turners Falls Airport's Airport Master Plan Update, such as installing an Automated Weather Observation System, constructing new storage and terminal buildings, completing perimeter fencing, and extending Runway 16-34 by 1,000 feet with a taxiway turnaround area. Continued review and updating of the CIPs and ASMPS for the Orange and Turners Falls Municipal Airports as necessary to reflect changing airport conditions, updated funding and cost figures, and revised project timetables.
- The Orange and Montague Airport Commissions to continue to promote the expansion of activities and facilities at the Orange and Turners Falls Municipal Airports, respectively, within the framework of each airports' master plans, that help promote and sustain the airports' financial self-sufficiency.
- The Orange and Montague Airport Commissions, FRCOG and other stakeholders are to continue to encourage the use of airport facilities, within the framework of the airports' master plans, to support economic development, public safety and regional interests.
- The Orange and Montague Airport Commissions, FRCOG and other stakeholders are to continue to support access and the responsible use of drones to support resiliency, risk management, and emergency response efforts.

Plane taking off at Turners Falls Municipal Airport

Franklin County Airports



	Orange Municipal Airport (ORE)		Turners Falls Municipal Airport (0B5)
Runway	Runway 01-19	Runway 14-32	Runway 16-34
- Dimensions (feet)	5,000 x 75	4,801 x 75	3,200 x 75
Annual Operations:	35,060		16,620
Operations Mix:			
- Local general aviation	24%		71%
- Transient general aviation	45%		28%
- Air taxi	31%		1%
- Military	<1%		<1%
Based Aircraft:	62		30

Source: Airport Manager, Orange Municipal Airport, 2019; Turners Falls Municipal Airport Master Plan Update, 2018.

Airport Type

🟦	Public Owned Airport
🟪	Private Owned Airport

Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
MA Executive Office of Labor and Workforce Development, InfoGroup, 2018
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

Franklin Regional Council of Governments

9

Transit Services

2020 Regional Transportation Plan

9 Transit Services

Franklin County's rural nature makes it difficult to effectively meet residents' transportation needs through fixed transit routes. The consequence is a limited public transit network and a region that is heavily dependent upon the personal automobile. This can be challenging for the estimated seven percent of households in Franklin County that do not have access to a vehicle, or those who are limited in their driving, such as the elderly.

The parts of the region with the best transit access and most service are located in the larger town centers and downtown areas that have the highest population densities, such as Greenfield, Turners Falls, Sunderland, Deerfield, and Orange. Sparsely populated areas have less transit access due to limited funds and the higher cost of providing services to a more dispersed population with limited funds.

The role of the FRCOG in the context of regional public transit access is to work with the regional transit agencies, MassDOT, and other stakeholders to help with the following tasks: 1) provide the best transit services possible; 2) expand existing services to meet resident and worker needs as feasible; and 3) ensure that transit planning and programming activities in Franklin County are consistent with the priorities identified in the Regional Transportation Plan and other local, regional, and state planning processes that have been conducted.

FRTA Lobby at the John W. Olver Transit Center

The Franklin Regional Transit Authority (FRTA) provides the majority of public transit services to Franklin County with some additional services being provided by the Pioneer Valley Transit Authority (PVTA). A total of ten fixed bus routes currently operate within Franklin County. All the towns in Franklin County except for Monroe, Sunderland, and Leverett are members of the FRTA. Sunderland and Leverett are members of the PVTA. Additionally, the Town of Orange is served by the FRTA and Montachusetts Regional Transit Authority (MART), which provides transit services to the neighboring Worcester County/Montachusetts region. The MART provides a weekday fixed route bus that connects the towns of Athol and Orange on an hourly basis.

Both the FRTA and PVTA also provide paratransit and demand response service to their respective towns with the level of the service varying significantly. The level of service depends on the financial contributions of a community. A map of the service areas for the FRTA is contained at the end of this chapter.

Despite the vast geographic area of the county and its rural character, there is a large and growing demand for increased public transit options. Through public outreach conducted during the development of this Regional Transportation Plan (RTP), it is clear that there is a very strong desire and need for increased and improved transit services in the region. This demand for increased transit services has also been frequently expressed to FRCOG staff not only at transit-related events, but also at meetings/events that focus on wide-ranging topics that include housing, economic development, health services, education, and many others. FRCOG staff have been hearing from residents, employers, service providers, educators, and others that they have felt very frustrated and limited by the lack of public transit options that exist in the region.

By far, the most frequent comment received about transportation in the region is the need for expanded bus service, particularly on the weekends and in the evenings. There is currently no public transit available on Saturdays or Sundays, nor in the evenings past 7:30 PM. This makes employment at non-standard 9-5 shifts extremely difficult for county residents and employers, and running basic errands on the weekends is impossible.

Fixed Route Transit Services

Fixed route transit service in Franklin County is provided by the FRTA and the PVTA. The FRTA operates eight of the fixed service routes in Franklin County. The PVTA operates two fixed service routes, which travel through the Franklin County communities of Sunderland and Deerfield. Transit routes operated by the FRTA are limited to weekdays and non-holidays, while one of the two routes operated by the PVTA operates also on Saturdays. The PVTA does not operate on major holidays, but does run on reduced schedules for minor holidays and when UMass Amherst is not in session (summers and winter breaks).

John W. Olver Transit Center in Greenfield

Franklin Regional Transit Authority (FRTA)

The FRTA is the primary transit agency for Franklin County. The FRTA's service territory extends into Hampshire, Hampden, and Worcester Counties. The FRTA serves the most rural and geographically largest area of all the Regional Transit Authorities (RTAs) in Massachusetts. The service area comprises a total of 41 towns and includes 23 towns in Franklin County and extends south to Blandford and Southwick in Hampden County, west to Middlefield in Hampshire County, and east to Petersham in Worcester County.

The FRTA, like other RTAs, is funded from a combination of federal, state, and local funding sources, as well as from revenue generated from fares. Each of the towns that are serviced by the FRTA pays a local assessment. This amount is based on the number of one-way trips associated with demand response transportation in the town, and the number of vehicle revenue miles of fixed route service in each town.

The FRTA presently has 42 transit vehicles in total, which includes 7 buses, 10 minibuses, and 25 vans, all of which are wheelchair accessible, and four service vehicles. All of the buses used for fixed route service have bicycle racks on the front of the buses. The bicycle racks hold two to three bicycles each and are on the buses year-round. The FRTA operates out of the John W. Olver Transit Center located in downtown Greenfield. The JWO Transit Center is the first zero net energy transit center in the nation and houses the administrative offices of the FRTA and the FRCOG. It is located adjacent to an Amtrak-operated passenger rail line and accommodates intercity bus service. Almost all of the fixed transit routes originate out of the JWO Transit Center. The building provides passenger amenities including rest rooms, indoor waiting area, a small café, WiFi service, and bicycle parking.

The FRTA's Maintenance Facility is currently located in a very old, obsolete building in Greenfield that is no longer able to serve the RTA's needs. In addition, the FRTA does not own the building and the Town of Greenfield would like to use the property for their adjoining wastewater treatment plant. The FRTA is currently working on relocating their Maintenance Facility to a new location in Montague, but are presently constrained by the availability of construction funds.

Table 9-1 outlines current FRTA bus route schedules and frequency. Bus fares for FRTA fixed route service is currently $1.50 per trip. Passengers with valid Statewide Access Passes, ADA cards, Medicare cards, persons over 60 years old, passengers with a valid MA Commission for Blind card, FRTA Veteran's photo ID card, or a valid Department of Veteran's Affairs photo ID card ride for half of the listed fare ($0.75). Children under the age of five ride free when accompanied by a fare-paying adult.

The FRTA has installed electronic fareboxes on all fixed route transit buses. These fareboxes are intended to make riding the bus easier and more convenient by allowing riders to purchase a plastic reloadable fare cards, called a GoCard! GoCards! can be used for multiple rides and are also available as a monthly pass in which a user can take unlimited rides for 31 consecutive days for $40.00. The FRTA also provides paper magnetic tickets for single use or smaller value increments. The tickets and cards may be purchased at the FRTA offices or at a kiosk in the JWO Transit Center lobby. In 2013, the FRTA installed RouteMatch System technology so that passengers can track buses in real time using their cell phones or the internet.

Table 9-1: FRTA Fixed Routes as of February 2019.

Route	Primary Destination(s) from Downtown Greenfield	Number of Round-Trips on Weekdays	Start and End Times of Routes
20 (GreenLink Connector)	Greenfield	9	4:35am-9:55am
21 (Greenfield Community)	Greenfield	12	8:00am-7:30pm
22 (BlueLink Connector)	Montague	4	6:30am-3:45pm

23 (Sunderland/Greenfield)	Sunderland	6	6:45am-7:30pm
24 (Crosstown Connector)	Montague-Greenfield	12	7:15am-7:20pm
31 (Northampton/Greenfield)	Northampton	7	5:00am-6:40pm
32 (Orange/Greenfield)	Orange	7	5:00am-6:45pm
41 (Charlemont/Greenfield)	Charlemont	4	7:00am-6:25pm

FRTA's annual ridership saw an increase between Fiscal Year (FY) 2017 and FY 2018. In the beginning of 2017, the FRTA redesigned their fixed route system to streamline the service and add/reconfigure routes. These changes resulted in this increase in ridership as shown in Figure 9-1. Over the past year, the ridership has increased by roughly 5,000 riders at a time when other regional transit authorities across the Commonwealth have seen declines in ridership.

Figure 9-1: FRTA Fixed Route Ridership 2017-2018

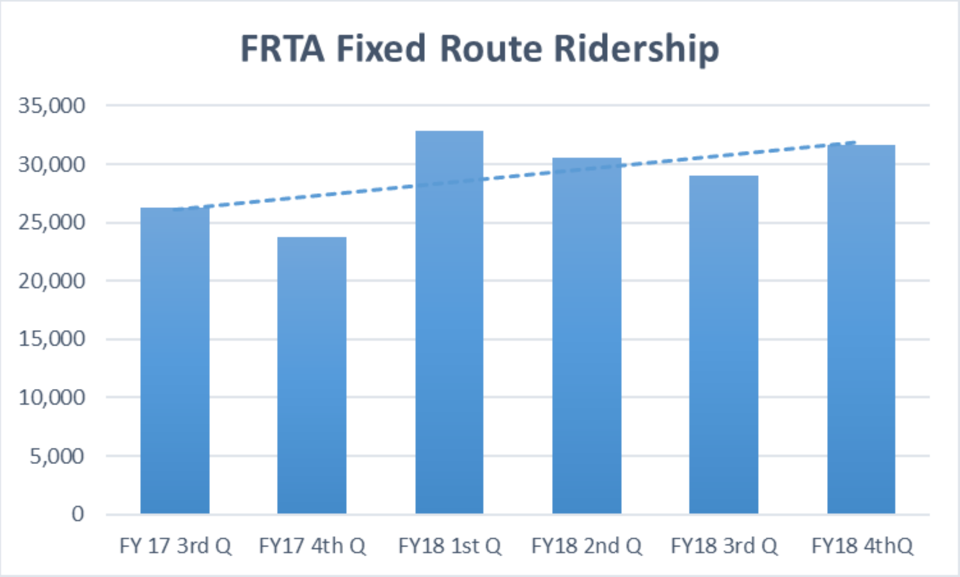
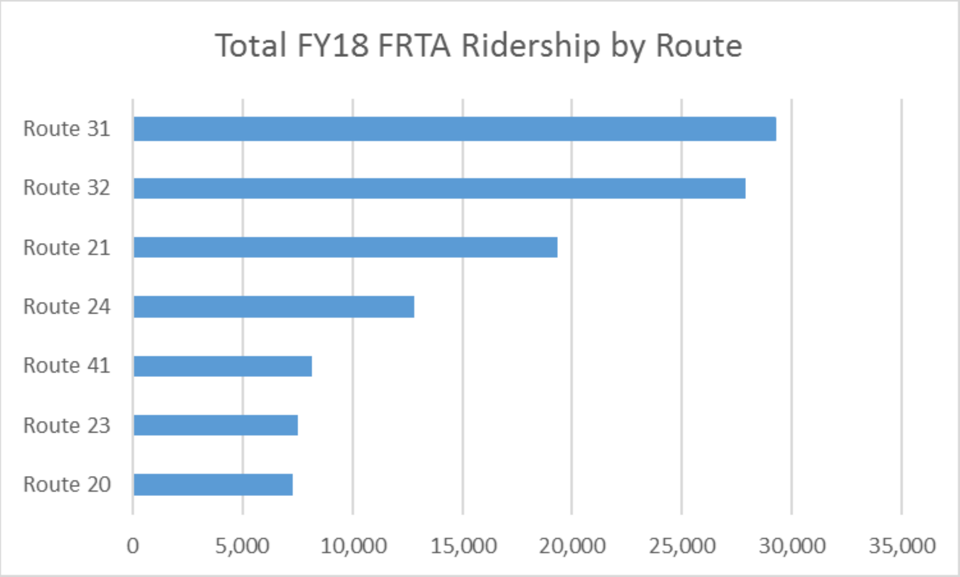


Figure 9-2 shows the ridership statistics for each of the FRTA fixed routes during FY 2018. The ridership statistics show that Route 31 (Northampton) and Route 32 (Orange) are the most popular routes within the FRTA system, followed by the Route 21 and Route 24 servicing the Greenfield and Turners Falls downtowns.

Figure 9-2: FRTA Ridership FY 2018 by Route



FRTA Fixed Route Descriptions

Route 20: Greenlink Connector

Route 20 serves the downtown Greenfield area and is focused on getting riders to their destinations early in the mornings. The Route 20 only runs from 4:35 A.M. to 9:55 A.M. and serves the high density residential areas. The route has been timed to meet the Greenfield High School and Greenfield Community College (GCC) class schedules as well. The Greenlink Connector loop takes approximately 20 minutes to travel and runs about every 30 minutes with extra service around 8:00 A.M to serve GCC students.

Route 21: Greenfield Community Route

Route 21 (Greenfield Community Route) traverses around Greenfield, reaching the majority of Greenfield's primary shopping destinations and high density residential areas. Some major destinations in downtown Greenfield include: Cherry Rum Plaza, Greenfield High School and Middle School, Leyden Woods, Greenfield Community College (GCC), the Big Y shopping center, and the Greenfield Corporate Center. The entire route takes approximately forty-five minutes roundtrip. The schedule for this route consists of twelve runs per day with the earliest run leaving the JWO Transit Center at 8:00 A.M. and the latest arriving back at the JWO at 7:30 P.M.

Route 22: BlueLink Connector

Route 22 provides service to the Village of Turners Falls. It is the only FRTA route that does not travel to Greenfield. Instead, it starts at Avenue A in Turners Falls and connects major destinations within the Village to the Turners Falls Industrial Park and Franklin County Technical School. The schedule for this route currently consists of four runs per day with the earliest run leaving the Carnegie Library on Avenue A at 6:30 A.M. and returning to Food City on Avenue A at 3:45 P.M. Each loop takes 30 minutes roundtrip.

Route 23: Sunderland/ Greenfield Route

Route 23 (Sunderland/Greenfield Route) connects Greenfield to Sunderland, via Turners Falls, Millers Falls, and Montague Center. This route is timed to make transfers at the Sugarloaf Estates to the PVTA Route 31 that provides service to UMass Amherst, because the riders are primarily commuters and students traveling to UMass. The schedule for this route currently consists of six round-trip runs per day with the first run leaving the JWO Transit Center at 6:45 A.M. and the last leaving at 6:10 P.M.

Route 24: Crosstown Connector

The Route 24 connects downtown Greenfield and Turners Falls throughout the day with runs occurring every hour. Major destinations along the route include Stop and Shop, Franklin Medical Center, Food City, and the JWO Transit Center. The route originates in Turners Falls at Avenue A and 11th Street, and takes approximately an hour roundtrip. The first run begins at 7:15 A.M. and ends at the JWO at 7:20 P.M.

Route 31: Northampton/Greenfield Route

Route 31 (Northampton/Greenfield Route) connects the communities of Greenfield, Deerfield, Whately, Hatfield, and Northampton. Starting at the JWO Transit Center in Greenfield, Route 31 travels to Deerfield where its stops include Frontier High School, South Deerfield Center, and Deerfield Industrial Park. After stopping in Deerfield, Route 31 proceeds on to Whately, with a stop at the MassDOT Park & Ride, and continues on to Northampton, stopping at the Big Y/Wal-Mart Plaza and the Academy of Music. The entire route takes approximately an hour and forty minutes roundtrip. The schedule for this route consists of seven round-trip runs per day with the earliest run leaving the JWO Transit Center at 5:00 A.M. and returning at the end of the day at 6:40 P.M. This route connects with a PVTA route in Northampton and was the most popular route in FY 2018 with 29,205 riders.

Route 32: Orange/Greenfield Route

Route 32 (Orange/Greenfield Route) connects several communities along Route 2 east, from Greenfield to Orange. Route 32's major destinations include: the Farren Care Center, the Orange Health Center, and the Wal-Mart and Hannafords Shopping Centers. The entire route takes approximately an hour and forty-five mintues roundtrip. The schedule for this route currently consists of seven round-trip runs per day with the earliest run leaving the JWO Transit Center at 5:00 A.M. and the latest returning at 6:45 P.M.

This route started as the G-Link Route in October in 1999 and was the result of a joint collaboration between the FRTA, FRCOG, and the Montachusett Regional Transit Authority (MART) to improve access to jobs. The entire G-Link service operates between Greenfield and Gardner, with connections to Fitchburg and to the commuter rail line running between Fitchburg and Boston. The FRTA runs the western portion of the service, now called Route 32, and MART runs the eastern portion of the service and the connecting bus service to Fitchburg. The two RTAs connect at the Hannafords in Athol for passengers to transfer.

Route 41: Charlemont/Greenfield Route

Route 41 (Charlemont/Greenfield Route) primarily serves western Franklin County, connecting the communities of Greenfield to Shelburne, Buckland, and Charlemont with four runs per day. Route 41 starts at the JWO Transit Center in Greenfield and major destinations includes GCC, Big Y Shopping Center, Shelburne Falls, the Charlemont Park and Ride, and the Academy of Charlemont. The earliest run departs JWO at 7:00 A.M. and returning at the end of the day at 6:25 P.M. The entire route takes approximately an hour and a half roundtrip.

The Pioneer Valley Transit Authority (PVTA)

The Pioneer Valley Transit Authority (PVTA) is based in Springfield, Massachusetts and is the regional transit authority for the Pioneer Valley. The PVTA is the largest regional transit authority in Massachusetts with a fleet of 174 buses and 144 vans.[1] The PVTA has 24 member towns in Hampshire, Hampden, and Franklin Counties and provides fixed-service bus routes as well as demand-response services for the elderly and disabled.

The PVTA operates two main transit routes in Franklin County: Route 31 (Sunderland/South Amherst) and Route 46 (South Deerfield/Whately Park & Risde/UMass). Route 31 connects the UMass campus to Sunderland Center with multiple stops on the route. Route 46 links the UMass campus to South Deerfield Center as well as several stops along the way. The fare for both of these routes is $1.25 for a one-way ticket, although students, faculty and staff of the Five Colleges ride for free. Both the PVTA and the FRTA employ interoperable farebox systems, which means that both systems are able to read the different RTA fare cards, although they are not currently set up to do so.

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[1] The MBTA is not considered a regional transit authority. It is however the largest public transit provider in the Commonwealth, followed by the PVTA.

PVTA Fixed Route Descriptions

The following section is a detailed description of the PVTA routes that run within Franklin County. Table 9-2 summarizes the PVTA routes that serve Franklin County.

Table 9-2: PVTA Routes to Franklin County and Route Frequency

Route	Number of Round-Trips on Weekdays	Start and End Times of Routes	Number of Round-Trips on Saturday	Number of Round-Trips on Sunday	Typical Weekday Peak Frequency
Route 31 (Sunderland/South Amherst)	55	7:00 A.M. – 11:00 P.M.	17	12	15 minutes
Route 46 (South Deerfield/Whately Park & Ride/ UMass)	2	7:25 A.M. – 5:20 P.M.	N/A	N/A	Irregular

Note: PVTA runs a reduced schedule when UMass is not in session.

Route 31: Sunderland/South Amherst

Route 31 provides transit services between the communities of South Amherst and Sunderland. Route 31 operates from 7:22 A.M. until at least midnight every night, with service extending to 1:30 A.M. on Thursdays, Fridays and Saturdays, and to 12:30 A.M. on Sundays. Route 31 is traditionally one of the PVTA routes with the highest ridership. While its ridership is very high, Route 31 is also greatly dependent upon the academic schedule, which causes ridership to decrease when UMass is not in session. As a result, PVTA runs a reduced schedule during these times.

Route 46: South Deerfield/Whately Park & Ride/UMass

Transit service between South Deerfield and UMass is provided by Route 46. This route includes a stop at the Whately Park and Ride and has a total of two runs per day – once in the morning and once in the afternoon/evening weekdays. There is no weekend service on this route. In September 2018, PVTA reduced the number of runs on this route from four to two roundtrips due to budget cuts. FRCOG staff have heard from many riders of this route that these reductions create for very long days, particularly on reduced schedule days when the trips are almost 11 hours apart. This has caused many former riders to look for carpool rides or begin driving themselves if possible.

Transit Asset Management (TAM) Plan

The FAST Act requires that all public transit providers monitor and manage their public transportation assets to improve safety and increase reliability and performance and to establish performance measures. To accomplish this, transit providers of a certain size must create a Transit Asset Management Plan and update it every four years. The FRTA falls into the Tier II level of reporting and the PVTA is considered a Tier I, due to the size of their transit fleets. The TAM plans were created in December 2018 and provide an inventory of each RTA's assets, detail their condition, and outline a project-based prioritization of investments with the goal of achieving and maintain a state of good repair of its assets.

ADA Paratransit Transit and Demand Response Services

The FRTA and PVTA each offer paratransit and demand response services, sometimes referred to as dial-a-ride van transportation, to elderly and disabled residents in their member communities. In all Franklin County communities, transportation through the FRTA or PVTA is available for seniors age 60 and over, and for some people with disabilities that affect their ability to drive and use regular fixed-route transit service. All of the PVTA and FRTA buses and vans are wheelchair accessible. Priority for service is given to people with disabilities and seniors and for essential purposes, such as medical care.

Under the American with Disabilities Act (ADA) of 1990, paratransit services must be provided in all areas with local fixed route bus services for people who cannot use the local bus system due to their disability. The ADA seeks to provide people with disabilities the same access to public transportation as people without disabilities. The FRTA's Paratransit Services are for disabled individuals who are available within three-quarters (¾) mile of a fixed route corridor and cannot navigate or access the provided fixed route service due to their disability.

There are several limitations to ADA transportation services in Franklin County, largely a result of its rural nature. Large land area and low population density are the primary factors for the county's limited fixed-route transit services. As a result, there are no requirements to provide ADA transportation services for at least half of Franklin County towns, due to the lack of fixed bus route service in the region. Much of the van service that is provided in Franklin County is, therefore, demand response service, which is optional and offered at the regional transit authorities' discretion. For the towns with fixed-route transit services, ADA service is available to qualifying residents during the regular route's hours of operation.

The FRTA and PVTA each contract with local private van companies to provide both the mandated ADA paratransit service and optional demand response service within their regions. For the FRTA, many of the providers are local Councils on Aging (COAs) that also offer other services to seniors. Franklin Transit Management (the operating company for the

FRTA) provides the ADA service. Table 9-3 on the next page summarizes the paratransit/demand response service that is available by town in Franklin County.

Table 9-3: Non-Fixed Route Transit Services Available in Franklin County

Town	Paratransit Service	Demand Response Service Provider	MedRide Service Provider
Ashfield	No	Shelburne COA*	FRTA
Bernardston	No	Bernardston COA	FRTA
Buckland	Yes[1]	Shelburne COA	FRTA
Charlemont	Yes[1]	Shelburne COA	FRTA
Colrain	No	Shelburne COA	FRTA
Conway	No	Shelburne COA	FRTA
Deerfield	Yes[1]	FTM**	FRTA
Erving	Yes[1]	Erving COA	FRTA
Gill	Yes[1]	FTM	FRTA
Greenfield	Yes[1]	FTM	FRTA
Hawley	No	Shelburne COA	FRTA
Heath	No	Shelburne COA	FRTA
Leverett	Yes	Amherst COA	No
Leyden	No	FTM	FRTA
Monroe	No	No	No
Montague	Yes[1]	FTM	FRTA
New Salem	No	Orange COA	FRTA
Northfield	No	Bernardston COA	FRTA
Orange	Yes[1]	FTM	FRTA
Rowe	No	Shelburne COA	FRTA
Shelburne	Yes[1]	Shelburne COA	FRTA
Shutesbury	No	No	FRTA
Sunderland	Yes[1]	Hulmes Transportation	No
Warwick	No	FTM	FRTA
Wendell	Yes	FTM	FRTA
Whately	Yes[1]	FTM	FRTA

Notes:
1: ADA Paratransit services are provided for disabled individuals who are available within ¾ mile of a fixed FRTA route corridor and cannot navigate or access a regular fixed route due to their disability.
*COA is the town-run Councils on Aging.
**FTM is Franklin Transit Management – the operator for the FRTA.
Sources: Information was obtained from the Franklin County Home Care Corporation, FRTA, and PVTA.

Human Service Transportation

Additional transportation services, such as van transportation, are offered to qualifying Franklin County residents through the Department of Developmental Services (DDS), Department of Public Health (DPH), and the Division of Medical Assistance (DMA), as well as other various state-level human service agencies. Regional transit authorities arrange transportation by request for elders and disabled residents in the area through a network of public and private transportation providers. The travel that can be funded through these programs is often limited to a few specific types of trips, such as medical trips or transportation to job training. Regional transit authorities generally coordinate the transportation services for the State's human service agencies. Transportation services for DDS, DMA, and DPH in Franklin County are currently coordinated by the FRTA and provided by private transportation operators.

Private Carriers and Other Transportation Services

Bus Service

The Greyhound Bus Lines operates a north-south service to Franklin County with one trip to Greenfield each day. The Greenfield station is located at the John W. Olver Transit Center. Passengers can switch buses in Springfield for other destinations, including: Worcester, Framingham, Boston, and points in Connecticut and New York. In 2018, Peter Pan Bus Lines discontinued both its east-west and north-south service through Franklin County reducing the options for intercity travel in Franklin County.

Taxi Service

There is currently only one cab company in the Greenfield area, About Town Taxi (none of their vehicles are handicapped accessible). There are also a few other cab companies based in towns close to the region and provide service to some Franklin County towns, such as Athol Taxi in Athol. Taxi companies also operate from Gardner to the east; North Adams to the west; Winchester, New Hampshire to the north; and Northampton and Amherst to the south.

Other Private Services

There are several limousine services in Franklin County. There are a larger number of van and charter bus services based in Franklin County. One of the largest private bus services in the county is F.M. Kuzmeskus, Inc, which is based in the town of Gill.

Ridesharing

Transport Network Companies (TNC) are private companies that provide rideshare services, such as Uber and Lyft. The popularity of ridesharing has exploded in Massachusetts and across the country since the 2016 Regional Transportation Plan. However, the availability of TNCs in Franklin County remains very limited. In 2017, there were a total of 1,489 rideshare trips that originated in Greenfield. This is far less than the 1.8 million trips that originated out of Boston Logan International Airport at the same time.[2] TNCs have the potential to be a good transportation alternative to Franklin County residents who cannot access the fixed routes or need rides when the buses are not running – particularly on the weekends and the evenings. However, there are potential limitations that should be considered with these services. The first is that they may be too expensive for low income residents, as well as requiring credit cards and smart phones, which pose additional barriers to service. The second is that TNCs are not usually ADA accessible, which restricts the ability of Franklin County residents with disabilities from accessing these services.

Public Transit Coordination

Regional Coordinating Councils

In 2012, Massachusetts established a Statewide Coordinating Council on Community Transportation with the objective of coordinating public transit services and human services throughout state. As part of this effort, Regional Coordinating Councils (RCCs) were established throughout the Commonwealth in 2014 – including a Franklin County RCC. The Franklin County RCC is composed of human service providers throughout Franklin County and the North Quabbin Region and meets bimonthly in conjunction with the FRTA Transit Advisory Committee. In 2015, the RCC created a Franklin Regional Transportation Inventory of all transportation services offered in Franklin County. The inventory also includes information about the cost, eligibility, and service area of all the transportation providers. The inventory was distributed to all human service providers in the region to better assist the needs of their clients. The inventory also provides an excellent basis for transportation coordination in the region as it highlights the overlaps and gaps in service that currently exist. The inventory can be found at the end of this chapter and has been updated by the FRCOG as providers change.

Coordinated Public Transit-Human Services Transportation Plan

The FRCOG has created a "Coordinated Public Transit-Human Services Transportation Plan for Franklin County" that identifies transportation providers in the region and key public transit service gaps in Franklin County. This Plan is regularly reviewed and an update will be completed in 2020. In 2014, the FRCOG identified the following transportation needs:

- Implementing additional fixed transit routes to allow access to employment, education, and services;
- Implementing more frequent fixed route service to accommodate passengers' needs to move between employment, childcare, and services in a timely manner;

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[2] Massachusetts Department of Public Utilities. "Rideshare in Massachusetts," 2017. https://tnc.sites.digital.mass.gov/.

- Implementing more evening transit service to allow access to employment, education, and services;
- Beginning weekend transit service to allow access to employment, education, and services;
- Improving connectivity between transportation providers serving Franklin County so that users can more easily transfer and move from Point A to Point B as efficiently as possible;
- Creating better links between transportation modes;
- Providing transportation services to residents located in the more rural areas of Franklin County far from fixed transit routes;
- Marketing of existing transportation services;
- Continuing the maintenance of vehicles at or above a state of good repair; and
- Acquiring modern accessible service equipment and technical applications.

Transit Planning Activities and Future Plans

The FRCOG is committed to working to ensure that all Franklin County residents have access to transportation facilities and services. To do so, FRCOG coordinates with the FRTA to explore ways to improve the region's bus system and work specifically to support better access to jobs, training, and needed services for low-income residents.

Comprehensive Service Analysis

In 2015, the FRTA completed a Comprehensive Service Analysis (CSA) that examined the existing fixed route system and made recommendations for improvement. For this analysis, the FRCOG collaborated with the FRTA to conduct extensive public outreach in Franklin County to better understand the transit needs of the public. The results from the public outreach were very clear. The region wants:

- More frequent bus service;
- Extended weekly hours (specifically evening service); and
- Weekend service (specifically Saturday service).

Since the 2015 CSA, the FRTA has made some fixed route system changes to implement portions of the recommendations of the report. Unfortunately, due to the lack of funding increases, the FRTA has not been able to implement most of the recommendations.

Microtransit

Since the 2016 Regional Transportation Plan was completed, a concept called "microtransit" has gained in popularity and is beginning to be implemented around the country. Microtransit uses real-time technology, similar to how private TNCs conduct ridesharing, to provide flexible and dynamic transit services except that is provided by a public entity. The use of smart technology allows transit providers to optimize vehicle usage, reduce costs, and improve the experience for riders. This form of transportation has also been called flexible transit or mobility services.

Microtransit could be a very good fit for a rural region such as Franklin County, where communities are spread far apart. The traditional, fixed route model relies on a bus traveling from point A to point B every day whether there are riders or not. Instead, a flexible microtransit service could change its route as it goes from point A to point B depending on real-time demand. This would increase ridership and reduce costs by only running when necessary. Riders would also have a better experience because they would be informed right away how long they would have to wait for a ride and may have a shorter trip.

The FRCOG and FRTA have been investigating various microtransit providers and are currently researching the most appropriate model to apply to Franklin County's conditions. The FRTA received a grant in FY2020 to upgrade its dispatching software to be able to pilot a microtransit-like service. The pilot will allow the general public to access empty seats on current demand response vehicles through same-day and next-day transportation. The grant funds would enhance our current scheduling software to include scheduling online and through a phone application.

Ridesharing Program for Social Service Providers

The FRCOG has also been working with social service providers in the region to explore the possibility of creating a subsidized rideshare program for their clients. This program would be modeled after the CAR program that began in 2017 in the Greater Attleboro area, in which social service agencies partnered with a TNC (Uber in this case) and provided subsidized rides to their clients when the fixed route buses were not available. This program is still in the planning and feasibility stages in Franklin County, but could offer substantial transportation alternatives to the agencies' clients at times when they are most needed.

Recommendations for Transit and Paratransit Services

Short Term Recommendations

- Promote current demand response services among elder and disabled residents who could benefit most from these services.
- Promote the Park and Ride lots in the region as a way to bolster bus ridership.
- Coordinate between the FRTA and the PVTA to investigate options for improved connections between the two regions.

- Work with major employers and industrial parks in the region to coordinate possible service to these locations.

- Attract TNCs, such as Uber and Lyft, to bring ridesharing to the region as an additional transportation alternative to residents and employees.

- Consider ways FRTA could coordinate with GCC, FCHREB, and CDC to create a workforce development-focused shuttle. One example is exploring the feasibility of contributions from GCC toward the cost of fixed route service by way of students' fees being charged as part of the tuition.

- Implement a micro-transit pilot project to more efficiently and effectively serve a rural region such as Franklin County.

- Implement a subsidized rideshare program for social service providers in Franklin County.

Long Term Recommendations

- Improve connections between Franklin County and UMass Amherst, the region's largest employer.

- Consider extensions of the fixed route system to serve the West County (Rt. 116) and North County (Rt. 5/10) regions.

Ongoing Recommendations

- Continue to work with the FRTA, PVTA, and the MART to keep area legislators informed about the regional importance of transit and the increasing demand for expanding the routes to include additional runs and evening and weekend service to better assist residents with access to employment, education, and training opportunities.

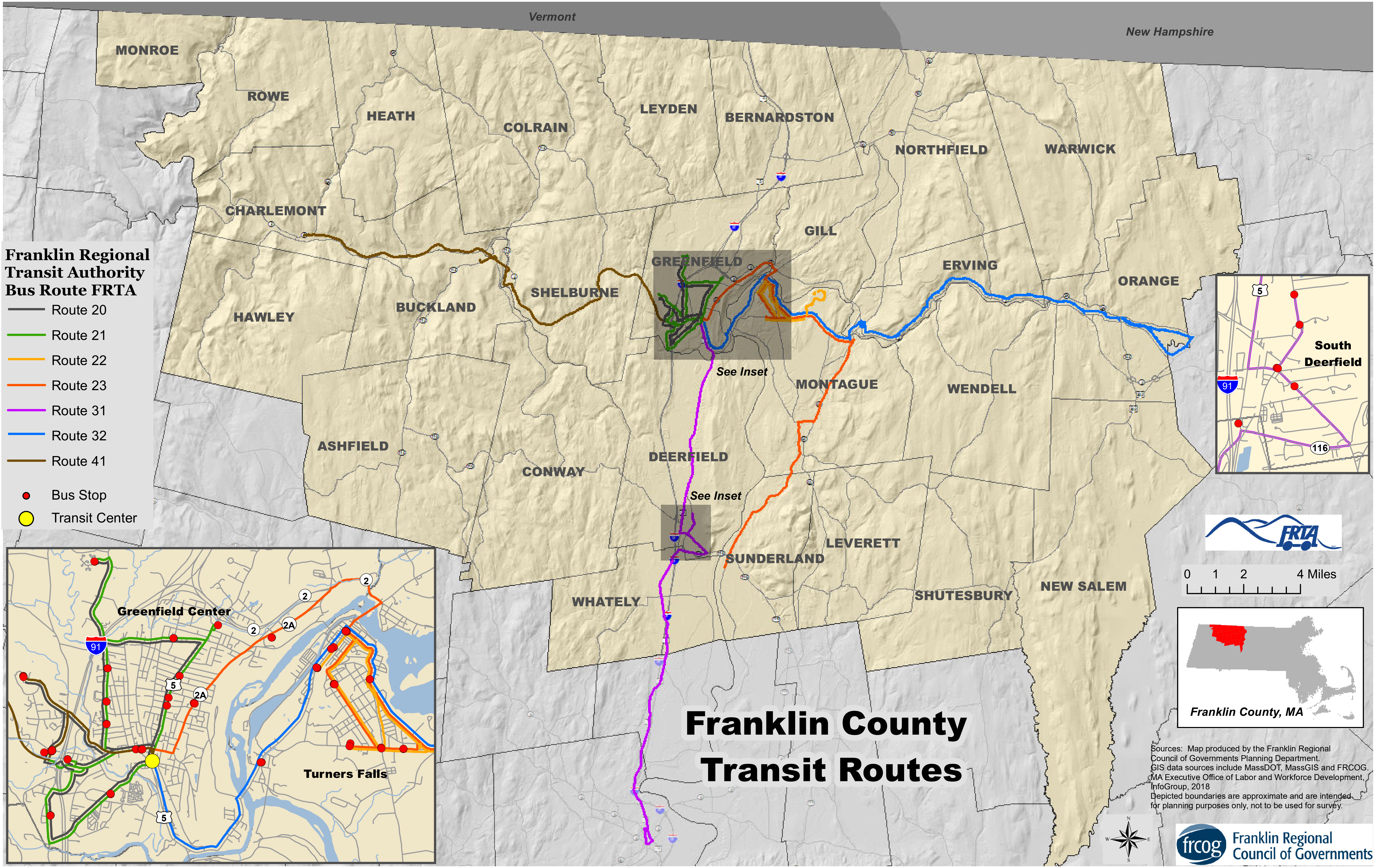
- Support evening and weekend transit services to meet transit rider demand.

- Continue to work with the regional transit authorities and other transportation providers to monitor and evaluate routes. Relatedly, the FRCOG is the only regional planning agency that does not receive funding to assist with transit planning. Advocate for increased transit planning funding for FRCOG staff.

- Expand current outreach and publicity efforts to provide information about FRTA transit services and to encourage bus usage. Outreach efforts should target the populations that are most likely to use transit services and to need transit assistance, such as low-income residents, disabled residents, and the elderly. Outreach efforts should also focus on the general workforce commuters.

- Support the provision of paratransit and demand response services for elderly residents and riders with disabilities, and work to expand van transportation availability, especially in areas with less than daily services and as the elderly population in the region grows.
- Continue to support the funding and construction of a new FRTA Operations and Maintenance Facility.

Riders waiting to board a FRTA bus at the Whately Park and Ride



Franklin County Transit Routes

Franklin Regional Transit Authority Bus Route FRTA

- Route 20
- Route 21
- Route 22
- Route 23
- Route 31
- Route 32
- Route 41
- ● Bus Stop
- ● Transit Center

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. MA Executive Office of Labor and Workforce Development, InfoGroup, 2018
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

10

Bicycle & Pedestrian Facilities

2020 Regional Transportation Plan

10 Bicycle & Pedestrian Facilities

Bicycling and walking are integral components of the transportation system in Franklin County. While the continued development of the region-wide Franklin County Bikeway is a priority, there is a new emphasis on planning for bicycle and pedestrian friendly communities and identifying projects that make connections within communities. The further expansion of local bicycling and walking links is a focus of many of the new initiatives and funding opportunities that have begun since the 2016 Regional Transportation Plan.

The FRCOG assisted Franklin County communities in identifying bicycle and pedestrian improvement projects; proposing initiatives to promote healthy transportation options; and assessing potential improvements to incorporate bicycling, walking and complete streets into existing infrastructure projects. The FRCOG embraces the principles of complete streets in transportation planning, and has worked to help the towns of Franklin County understand complete streets and navigate the technical aspects of the Massachusetts Complete Streets Funding Program. Complete Streets are designed and operated to enable safe access for all users including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. They are safe for people to walk/bicycle to and from their destinations, and also allow buses to run more efficiently. The concept of Complete Streets reinforces a way of thinking about transportation planning, and routinely integrating alternative modes as part of the transportation system.

Currently, there is an increased emphasis in transportation planning on improving the built environment to support healthy communities. Safe access to places that encourage physical activity and healthy food are a priority. In addition, the development of transportation infrastructure to support the reduction in greenhouse gas emissions is essential. A number of state policies, directives, and partnerships have been implemented to support these priorities including the following:

- The **Healthy Transportation Compact** is an inter-agency initiative, including MassDOT, Health and Human Services, Energy and Environmental Affairs, and Public Health, designed to facilitate transportation decisions that balance the needs of all transportation users, expand mobility, improve public health, support a cleaner environment, and create stronger communities.

- MassDOT adopted a **Statewide Mode Shift Goal** of tripling the share of travel in Massachusetts by bicycling, transit and walking by 2030.
- The **Healthy Transportation Policy Directive** lays out specific transportation project planning and design requirements to ensure that healthy transportation modes, including walking, bicycling and taking transit, are considered equally as potential solutions.
- The **Transportation and Climate Initiative (TCI)** is a regional collaboration of 13 Northeast and Mid-Atlantic jurisdictions that seeks to develop the clean energy economy, improve transportation, and reduce carbon emissions in the transportation sector. Massachusetts joined TCI in 2010, and recommitted to exploring joint solutions with its fellow states in November, 2017.
- The Massachusetts Legislature passed the **Global Warming Solutions Act (GWSA)** which set specific goals for state agencies to reduce greenhouse gas emissions in order to achieve limits. The legislation is intended to assist the Commonwealth in achieving their adopted greenhouse gas emissions reduction goals.

The FRCOG works to incorporate the intent of these initiatives into regional transportation planning.

Bicycle Facilities Planning

Statewide Planning Efforts

In January 2019, a draft of the *Massachusetts Bicycle Transportation Plan Updat*e was released. The focus of the updated plan is creating connected networks of safe, comfortable, and convenient bikeways to enhance mobility, public health, environmental sustainability, and economic development opportunities. In a departure from the previous Statewide Bicycle Plan which focused on making long distance connections, this plan shifts attention to making short trips within communities safer and more viable. As part of the statewide bicycle planning process, *A Municipal Resource Guide for Bikeability* was also compiled to provide technical guidance to communities. The Resource Guide focuses on seven topics related to the planning, design, and maintenance of bikeable communities. The two documents represent MassDOT's continued commitment to multi-modalism and then expansion of zero emission options statewide. The FRCOG participated in the development of the Statewide Bicycle Plan and the *Municipal Resource Guide for Bikeability* by providing Franklin County information.

Franklin Regional Bicycle Planning

The varied geography and topography of Franklin County pose challenges to the use of bicycles for transportation. The rural development patterns in some parts of the region mean that individuals may have to travel longer distances to work and to run routine daily errands. These challenges are considered when developing bicycle routes and facilities for the region. However, the region's geographic conditions and scenic landscapes also contribute to the appeal of bicycling in Franklin County. There are many rural roads with low traffic volumes and picturesque rural landscapes. The FRCOG is committed to improving the bicycle facilities in the region and continues to look at new ways to enhance the atmosphere for bicycling. The FRCOG completed an update of the Franklin County Bikeway Plan in 2009, which outlines a network of bicycling routes throughout the region. An update to this plan will be compiled within the next five years.

Existing Bicycle Facilities

Franklin County Bikeway

The Franklin County Bikeway is a region-wide network of bike routes. Approximately 44-miles of the network had been constructed as either off road multi-use trails (approximately 5 miles) or on-road signed shared roadway routes (approximately 44 miles). There are an additional approximately 240 miles of shared roadway routes that are not currently signed, but are detailed on bikeway maps giving cyclists in the region suggested routes to reach their destinations. Both digital and paper maps are available. Plans to install Franklin County Bikeway wayfinding signs on these routes are underway. A map of the entire Franklin County Bikeway can be found at the end of this chapter.

The following are descriptions of the 44-miles of off-road and shared roadway facilities that are constructed and/or signed as bike routes in Franklin County.

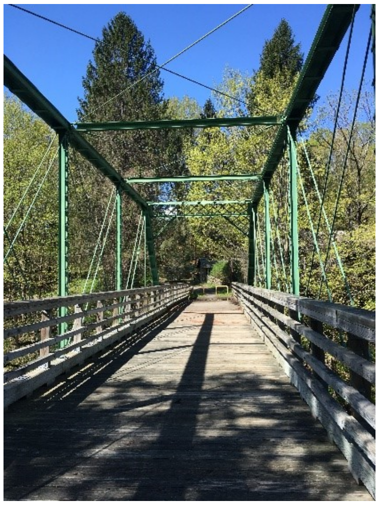
The Riverside Greenway (Greenfield)

The Riverside Greenway is a 1-mile multi-use path located in the Town of Greenfield. Built on an abandoned road, this path connects a densely populated residential area with a heavily used public recreation facility. The path is owned and maintained by the Town of Greenfield and includes a bicycle and pedestrian bridge over the Green River.

Cyclists on the Riverside Greenway Bikepath in Greenfield

East Mineral Road Bridge (Montague and Erving)

The East Mineral Road Bridge was reconstructed for use as a bicycle and pedestrian bridge. The former vehicle bridge crosses the Millers River from East Mineral Road in Montague to River Road in Erving, and provides an important link in the Franklin County Bikeway network. It provides bicyclists and pedestrians access north and south without having to cross Route 2 at grade. Route 2 is a challenging route because of the high vehicle volumes and speeds.



The East Mineral Road Bridge

Canalside Trail (Deerfield and Montague)

The Canalside Trail is a 3.27-mile off-road multi-use path located in the Towns of Montague and Deerfield. It links the Connecticut River Great Falls Discovery Center and Unity Park in the Village of Turners Falls in Montague, to McClelland Farm Road, located off of River Road, in northeast Deerfield. The path travels next to the Connecticut River Canal in Turners Falls and along an abandoned rail corridor including a railroad bridge over the confluence of the Deerfield and Connecticut Rivers in Montague City and Deerfield. There is parking at each end of the Canalside Trail (in Turners Falls and in East Deerfield).

The Canalside Trail Bikepath in Turners Falls

Bicycle/Pedestrian Bridge on Greenfield Road
Construction of the bicycle/pedestrian bridge on Greenfield Road was completed in the fall of 2017, and replaces a former vehicle bridge over the B&M Railroad that was removed. The bridge is on the Connecticut River Route, a shared roadway route that travels along the Connecticut River from Montague to Sunderland.

A bicyclist traveling over the new Greenfield Road Bridge

Canalside Trail Bike Path and Pedestrian Crossing Improvements on Montague City Road in Montague

The crossing of the Canalside Trail on Montague City Road at Solar Avenue and Depot Street in Montague was improved in 2016 to create a safer crossing of this high traffic road. The work included the construction and repair of sidewalks and wheelchair ramps, improved bus stops, pavement markings, signage, pavement narrowing for traffic calming and a flashing beacon to improve the bike path crossing.

Signed Shared Roadway Sections of the Franklin County Bikeway

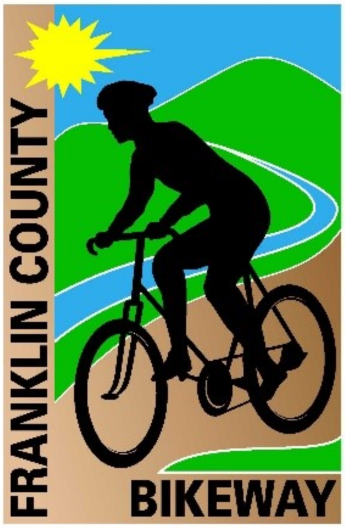
The following Franklin County Bikeway shared roadway routes are marked with Franklin County Bikeway trailblazing signs.

- The Northfield Connector is a 14-mile route that links Montague and the East Mineral Road Bridge to the Northfield Mountain Recreation and Environmental Center, downtown Northfield, and inter-regional routes in New Hampshire. It travels along Millers Falls Road and East Mineral Road in Montague; River Road in Erving; and Pine Meadow Road, Millers Falls Road and Main Street in Northfield.
- The Greenfield-Montague Loop Route connects the Canalside Trail, the Northfield Connector, and the Riverside Greenway using local streets including McClelland Farm Road and River Road in Deerfield; Deerfield Street, Mill Street, River Street, Shelburne Road, Woodward Road, Colrain Street, Riverside Drive, Nash’s Mill Road, Leyden Road, Silver Street, Country Club Road, Log Plain Road, Lampblack Road, and Bascom Road in Greenfield; and Hoe Shop Road, West Gill Road and Main Road in Gill.
- The Connecticut River Route travels along the Connecticut River from Montague to Sunderland on Greenfield Road, Meadow Road and South Ferry Road in Montague, and Falls Road and North Main Street in Sunderland.
- The Leverett-Amherst Route travels from Millers Falls Road through Montague Center and Leverett Center to North Amherst. The route travels on Lake Pleasant Road, Montague Road, Old Northfield Road, Turners Falls Road, Main Street, School Street, Old Sunderland Road, Old Stage Road, and Gunn Road in Montague; Long Plain Road, Montague Road, Depot Road and Amherst Road in Leverett.

Proposed Future Bikeway Projects

Shared Roadway – Franklin County Bikeway Route Signs

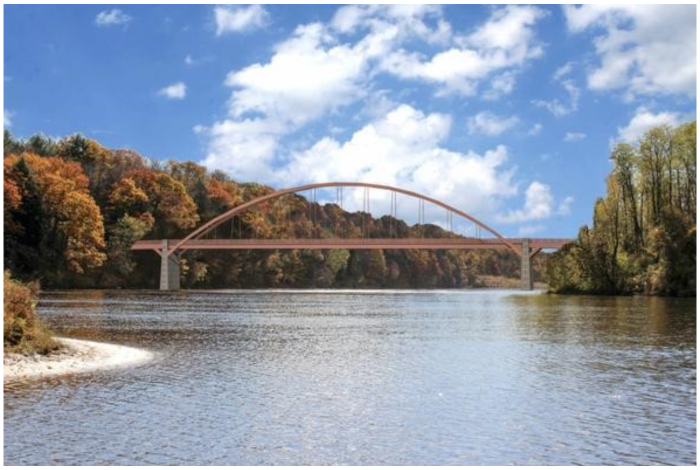
The *2009 Franklin County Bikeway Plan Update* identified additional shared roadway routes and potential off-road facilities throughout Franklin County. Planning work was completed to identify locations for the installation of Franklin County Bikeway logo signs on these routes, expanding the number of trailblazed miles to approximately 240. The next step is to secure funding to fabricate and install the signs.



The Franklin County Bikeway Logo

Schell Bridge Replacement (Northfield)

This project will remove the existing deteriorated bridge structure, which is currently closed, and replace it with a new multi-span bicycle-pedestrian bridge over the Connecticut River in Northfield. The bridge is currently in preliminary design and construction is estimated for 2021-2022. It is a link in the Franklin County Bikeway, Connecticut River Scenic Byway and Bay State Greenway route networks, and one of a few crossings of the Connecticut River in the region.



A Rendering of the Proposed Schell Bridge Replacement

Millers River Greenway (Orange and Athol)

The development of a bikeway/greenway along the Millers River connecting Orange and Athol has been a desire of the two towns for many years. Since 2000, some conceptual planning work has been completed to identify options, but a final route has not been determined. Both off-road and on-road route options have been explored. The project received an earmark ($2 million) in the 2014 Massachusetts Transportation Bond. As a result, a series of meetings were held with stakeholders to revisit potential route layouts, and identify next steps. Originally envisioned as a link between the Orange Riverfront Park and the Millers River Environmental Park in Athol, public outreach has revealed an interest in expanding the concept to span from Phillipston to Greenfield with a spur to Wendell. The project is within an Environmental Justice area in downtown Orange.

Erving – Wendell Path

During the development of the Erving Master Plan (2002) and the public participation process for the Route 2 Safety Improvement Project, the lack of alternatives to bicycling on Route 2 in Erving was noted as a community concern. It was recognized that Route 2 is not recommended for bicyclists because it has a narrow and winding layout, lacks roadway shoulders in many locations, and has high traffic volumes and speeds. On two occasions (2002 and 2011), the FRCOG explored potential bicycle and pedestrian links in Erving other than Route 2 that could link the areas of Erving known as Farley and Ervingside to Erving Center. Routes in Erving Center included potential connections from Mountain Road to the east, and a route through the town-owned cemetery on Cemetery Road to Flagg Hill Road.

Old Farley Road in Wendell was identified as a potential off-road walking/bicycling route option. It is an existing dirt road that travels west from Arch Street in Erving Center approximately 2 miles and connects to Posk Place in Wendell. Much of this route travels on land within the Wendell State Forest, which is owned by the Massachusetts Department of Conservation and Recreation (DCR). It terminates at Posk Place in Wendell near the New England National Scenic Trail hiking trail and a popular fishing location. In addition, there is another possible link to the east of Arch Street which is also within the Wendell State Forest that links to Sears Road and Wendell Depot Road. The project is within an Environmental Justice area.

Greenfield to Whately/South Deerfield

Route 5/10 is a popular travel and commuting corridor for bicyclists. There are businesses, attractions, and large regional employers located along the route that are destinations and potential destinations for bicyclists. In addition, the Whately Park and Ride Lot that is serviced by FRTA and PVTA on Route 5/10 to the south in Whately. Over the years, interest in roadway improvements and/or the development of alternative routes to better accommodate bicycle travel from Greenfield to Deerfield and Whately has been expressed. Improvements along this route will better connect the Environmental Justice areas in Greenfield and northern Deerfield to South Deerfield and Whately.

Improvements on Route 5/10

There is a wide right-of-way in the southern section of Routes 5/10/116 in South Deerfield (from the Whately Park and Ride Lot at the intersection of Route 5/10/116 and Sunderland Road to the traffic light at the intersection of Route 5/10 and Conway Road) which allows for more flexibility in designing options for bicycle accommodation. The construction of an improved wide shoulder, separated bike lane or separate bike path are possible options for providing a more comfortable bicycling atmosphere in this section.

The northern section of Route 5/10 in Deerfield, from the intersection of Route 5/10 and Conway Road (Route 116) to Greenfield, has a narrower right-of-way. A separated bike lane was added on the section of Route 5/10 from just north of the intersection with Route 116 (Conway Road) to just south of the intersection with North Main Street/Mill Village Road. The roadway and shoulders narrow to the north of the separated bike lane, and while a separated bike lane may not be feasible but restriping or shoulder widening to better accommodate bicycles may be an option.

Route 5/10 Bypass

As an alternative to bicycling on Route 5/10 in Deerfield, the Deerfield Master Plan (April 2000) recommended the construction of an off-road bike path to the south of the Cheapside Bridge and to the west of Route 5/10. The proposed route travels near the Deerfield River to Pine Hill Road (or Old Ferry Road which is an old 1732 county road), and would provide a connection for bicyclists into Historic Deerfield. There is currently a dirt road along a portion of this route that could potentially be improved as a bike trail. Further analysis of the feasibility of this route is needed to determine if an off-road bicycle path could be developed.

Greenfield Meade Street Bike Path Connection

The proposed Meade Street Bike Path provides an off road connection from River Street and Mill Street to Deerfield Street in Greenfield. This is an important link both within Greenfield and as part of the regional bikeway network. The path is close to downtown Greenfield, and offers a better connection to the Franklin County Bikeway by providing an alternative to traveling on the busy northern section of Deerfield Street (Route 5/10). The proposed bike path will improve the connection between neighborhoods, downtown, and the John W. Olver

Transit Center, which is the hub for public transit and passenger rail service. It will also link to a new on-street bicycle lane which is being built on River and Mill Streets with funding from the Massachusetts Complete Streets Funding Program. This project is within an Environmental Justice area.

Connections to New Hampshire and Vermont

The FRCOG has worked to coordinate bicycle planning with neighboring New Hampshire and Vermont. Past projects have included the development of the Tri-State Connecticut River Scenic Byway Bikeway route and map (see further description below). Recent work to coordinate the bicycle connections has included the FRCOG staff's participation in a planning effort in New Hampshire aimed at addressing challenges and opportunities along the approximately 21.5-mile stretch of the Ashuelot Rail Trail between Hinsdale and Keene, New Hampshire. This would better connect the southern Vermont and New Hampshire trails and bike routes to the Environmental Justice area in Northfield, Gill and Erving.

Existing Bicycle Promotional and Advocacy Programs

The FRCOG works to encourage bicycling for transportation and recreational purposes to Franklin County residents and visitors. A number of initiatives and completed projects educate the public about bicycling in the region, and enhance the experience. The FRCOG continues to develop promotional materials and programs to educate the public about the existing facilities and encourage bicycling instead of driving. A number of maps and informational resources have been developed. In addition, the FRCOG is working to develop a bicycle tourism promotional campaign which is detailed in this section.

Franklin County Bikeway Maps

There are three Franklin County Bikeway route maps: the Western Franklin County Bikeway map, the Central Franklin County Bikeway map, and the Eastern Franklin County Bikeway map. The maps were most recently updated in 2018, and classify each route as novice, intermediate, or advanced in order to help bicyclists to determine the most suitable route to ride given their ability and physical fitness level. The maps also include information on the services available in the area, and elevation changes a rider will encounter. In addition to the paper maps, digital maps are available on the FRCOG's website (www.frcog.org). These maps are intended for viewing on-line, and are not of a high enough resolution for large scale printing. Additionally, the bikeway route information can be viewed through Google Earth maps (the routes can be downloaded from the FRCOG website to be added to Google Earth).

Tri-State Connecticut River Scenic Byway Bike Route Map

As noted previously, a bicycle route map for the tri-state (Massachusetts, New Hampshire and Vermont) area of the Connecticut River Scenic Byway was completed in 2014. The FRCOG worked jointly with the Pioneer Valley Planning Commission, the Southwest Region Planning Commission (in New Hampshire) and the Windham Regional Commission (in Vermont) to develop a print map, as well as on-line versions of the map that can be viewed in Google Earth (downloadable from www.frcog.org). This primarily on-road route connects Greenfield, Keene, NH, and Brattleboro, VT. Wayfinding signs were also installed along the routes.

Interactive Bike Map

The FRCOG is developing an interactive on-line bicycle tourism map. The map includes lodging, Amtrak Vermonter train stations, park and ride lots, Franklin County Bikeway routes, Tri-State Bikeway routes, photos along the bikeways, the Robert Frost Trail, locations of bike parking racks, the New England National Scenic Trail, Franklin Regional Transit Authority Bus routes, and the Scenic Byways. The on-line map link will be posted on the FRCOG website when it is complete.

Bike and Recreation Promotional Project

The FRCOG is developing and implementing a program to market Franklin County to bicycle tourists. During the past four years, work has been completed to define the backbone of a promotional program. Initially, meetings were held with advocates and stakeholders from the bicycling and tourism industries to gather input about current visitors to the area and ways to reach out to potential guests. Additionally, research was completed to gather information about other places that have developed bicycle tourism plans, and to create a list of best practices and examples. A list of bicycling events and resources in the greater Franklin County region was compiled in 2017. From that list of bicycling events, some statistics about the events and the participants was gathered and used to target outreach to potential tourists and support businesses. The participant information was particularly helpful in identifying the next steps of the project, which included launching the Bike Friendly Business Program.

During 2018, the FRCOG worked collaboratively with the Franklin County Chamber of Commerce to develop a recreational marketing program with a strong emphasis on recreational bicycling. This marketing program is still in development, but it is anticipated that it will be launched during 2019.

Bike Friendly Business Program

In 2018, the FRCOG launched a Bike Friendly Business Program. The goal of the program is to recognize and market Franklin County businesses that welcome and support the bicycling community. The FRCOG sent a mailing to 300 businesses with information about the program and the positive reasons to become a bicycle friendly establishment. Bike friendly businesses provide amenities that support bicycling and can draw cyclists to their establishments such amenities include bike parking, water and restrooms, repair stations, snacks, bike rentals and more. By providing these amenities these participating businesses can enroll in the program and are included in Bike Friendly Business promotional materials, and receive a window logo to display that shows their participation. Work to roll out the program will continue in 2019.

BIKE FRIENDLY
BUSINESS

The Franklin County Bike Friendly Business Program Logo

Bike Week Breakfast Event

The FRCOG regularly participates in Bay State Bike Week activities during the month of May by hosting a breakfast for bicyclists. The annual event is a great occasion to get together with the bicycling community, and to provide an opportunity for local bicyclists to network with one another. The event also gives FRCOG staff an opportunity to receive input about the current bicycle infrastructure, and desired improvements. In addition, participants have the opportunity to learn how to load bikes onto FRTA buses, and to check out the new FRTA low floor accessible bus.

Off Road Bike Network

The FRCOG is working to support mountain biking networks in Franklin County. In particular, during 2019 the FRCOG submitted a joint application with PVPC and BRPC to the MassTrails program for funding to create maps and other resources to promote the mountain biking trail networks in western Franklin County. This mapping task is intended to serve as a pilot to determine the best process for completing additional mapping of the mountain biking trail network in western Massachusetts in the future. The project scope also included gathering information on the existing connections and gaps in order to plan a comprehensive mountain biking trail network. In addition, the scope includes researching best practices and lessons learned from other places in the country that have marketed their areas as mountain biking destinations.

Bicycle Safety Campaign

Bicycle safety is a concern. In 2015, the FRCOG researched bike safety campaigns from across the country to get ideas for developing a Franklin County bicycle safety campaign. A number of powerful and well defined campaigns were identified. The FRCOG launched a bicycle safety campaign to educate motorists and bicyclists about the rules of the road and to share the road in May 2019.

Bikes on Buses and Rail

All Franklin Regional Transit Authority (FRTA) and Pioneer Valley Transit Authority (PVTA) buses that operate in Franklin County are equipped to carry bicycles. This allows commuters to travel a portion of their trip by bus and a portion by bicycle. Additionally, the Amtrak Vermonter train service carries bicycles. A reservation with Amtrak for the bicycle is required and there is limited capacity. Future public transportation system expansions, as well as the future development of regional rail services through the region, should include space for carrying more bicycles in order to encourage the use of bicycles as a viable form of transportation.

Bicycle Parking and Other Amenities

The FRCOG encourages the installation of additional bicycle parking in order to make bicycling convenient. In 2017, the FRCOG completed a bicycle parking purchase program, and provided bicycle parking racks to communities in Franklin County free of charge. Through this project, the FRCOG purchased 54 bike racks for 11 towns and 3 school districts including Greenfield Community College (GCC).

The FRCOG also encourages the installation of other bicycle related amenities such as bicycle repair stations and pumps in convenient locations throughout Franklin County. The FRCOG installed a bicycle repair station at GCC and will be giving three bicycle repairs stations to towns to be installed in the spring of 2019 in locations across the county.

Bike Share

During 2015 a bike share program feasibility study was completed. This plan examined options for implementing a bike share program in Greenfield and the possible locations where docking stations could be located. There is currently a renewed interest in the implementation of a bike share program in Greenfield, and work is underway to determine the best approach establishing one.

Pedestrian Facilities Planning Efforts

Massachusetts Statewide Pedestrian Plan

In 2018, MassDOT completed a Statewide Pedestrian Plan. The Plan recommends policies, programs, and projects to guide MassDOT's decision making and capital investments in pedestrian infrastructure. The Plan is also intended to provide direction to municipalities to improve walkability in local communities. The Plan recognizes the importance of walking as a part of daily life, and defines a vision for Massachusetts in which all people have a safe and comfortable walking option for short trips. A focus of the Plan is to reduce the demand for new vehicle trips, reduce greenhouse gas emissions, promote public health, and support economic development. It acknowledges that when pedestrian facilities, such as sidewalks, ramps, and crosswalks, are absent, poorly maintained, or unsafe, it puts people in danger, encourages trips in cars that could reasonably be made on foot, or limits mobility altogether. MassDOT also recognizes the importance of pedestrian safety and commits to working towards eliminating all pedestrian deaths in the Commonwealth. The Plan also outlines how MassDOT will support its municipal partners in their efforts to improve walkability. There is a companion document to the Plan, the Municipal Resource Guide for Walkability, which is intended to help towns improve their walking infrastructure.

Franklin County Pedestrian Planning

The focus of pedestrian planning in Franklin County continues to be on identifying walking connections and planning for infrastructure improvements such as sidewalks, safe crosswalks, and connections to shops, services, and residences whenever possible. While the FRCOG recognizes that there are challenges to walking and planning for walkable communities within a rural region, there are many opportunities to implement solutions that make the infrastructure safer and easier to walk. It is particularly important to identify improvements that can be incorporated into larger road projects. The FRCOG has focused on planning for complete streets as a way to identify pedestrian and bicycle infrastructure improvements that can be added to other constructions projects.

The FRCOG completed a Regional Pedestrian Plan in 2010 and was the first regional pedestrian plan developed for Franklin County. In recent years, the FRCOG's pedestrian planning work has been on the local level, and has looked at many locations to identify needed improvements and ways to enhance connections.

Existing Pedestrian Facilities

Recently Completed Pedestrian Improvements

Greenfield Intersection Improvements at Route 5/10 and Cheapside Street

The intersection of Route 5/10 and Cheapside Street was poorly aligned, confusing to motorists, and had several safety issues. Pedestrian accommodations and sight distance were poor. The project realigned the intersection and added needed turn lanes to improve traffic flow and safety. Improved pedestrian access was included as part of the project.

Montague Pedestrian Crossing Improvements on Montague City Road

The crossing of the Canalside Trail on Montague City Road at Solar Avenue and Depot Street in Montague was improved in 2016. The work included the construction and repair of sidewalks and wheelchair ramps, as well as improvements at the FRTA bus stop and the installation of a flashing beacon at the crossing.

Sunderland Complete Streets Improvements

Sunderland participated in the Massachusetts Complete Streets Funding Program. As part of the program, the FRCOG helped Sunderland to compile a Prioritization Plan and successfully applied for funding. During 2018, Sunderland constructed a sidewalk on Garage Road and North Silver Lane, installed new crosswalks and a bus stop on Old Amherst Road, constructed a sidewalk on River Road, reconstructed the sidewalk on South Main Street, and created a multi-use path connection to the Elementary School with funding awarded through the program.

The new Sidewalk on North Silver Lane in Sunderland

Future Pedestrian Infrastructure Improvements

There are several pedestrian infrastructure projects in the region that are in various stages of planning and design. The following are brief descriptions of these projects.

Buckland Conway Street, South Street and Conway Road
The Conway Street, South Street and Conway Road reconstruction project in Buckland includes 1,100 feet of sidewalk reconstruction to achieve ADA compliance. It is currently in design and scheduled for construction in 2022.

Buckland North Street and Route 112 Connection to Mohawk Regional School and the Buckland Recreation Area
A sidewalk is needed on Route 112 and North Street to connect Shelburne Falls to the Mohawk Regional School and the town recreation area. There are frequently pedestrians walking in the shoulder on this busy road. The town of Buckland has requested improvements on Route 112 from North Street to Mohawk Trail Regional High School, and the Buckland Recreation Area, to better accommodate pedestrians. A sidewalk is desired, but because of issues related to winter maintenance, MassDOT is designing a shoulder widening project to accommodate both pedestrians and bicycles. There are continued concerns that a wide shoulder is not the best option for providing pedestrian accommodation, and the FRCOG will continue discussions throughout project development to design a project that all support.

Charlemont Roadway Reconstruction and Village Traffic Calming Project
Pedestrian infrastructure improvements on Route 2 in Charlemont center are included as part of a 0.9 mile roadway reconstruction project that begins approximately 600 feet west of where Route 8A crosses the Deerfield River and ends just east of South Street. The project is designed and scheduled to be constructed beginning in 2019. It includes roadway and sidewalk reconstruction work, and the construction of various traffic calming measures in the Charlemont village center. All existing sidewalks and curb-cut ramps will be reconstructed to achieve accessibility compliance. The project also includes bicycle accommodation. The project is in an Environmental Justice area.

Colrain Center Intersection Improvements
This project will reconstruct the three-legged intersection of Main Road, Jacksonville Road and Greenfield Road in Colrain village center. It is intended to improve sight distance and pedestrian accommodation, and includes reconstructing the intersection and its approaches from 0.1 mile north and south, and 0.5 mile west to the town offices. It also includes creating an accessible network of sidewalks, ramps, and crosswalks to link popular village center locations. The project will include approx. 0.5 mile of new sidewalk, with landscaping

and streetscape elements to promote pedestrian mobility in the village. Construction is anticipated in 2020. The project is in an Environmental Justice area.

Ervingside Streetscape Improvements

The Ervingside Streetscape Improvement Project was awarded funding from the National Scenic Byway Program to complete the design and construction of sidewalk and streetscape improvements along the Connecticut River Scenic Byway (Route 63) in Erving. It is intended to improve pedestrian access and safety on a one mile section of Route 63 in Erving, and spans from the north side of the bridge over the Millers River on Bridge Street (at the Erving/Montague town border) to the Erving Senior center. The project area is just over one mile long, and includes the Erving section of Millers Falls and the adjacent residential neighborhood known as Ervingside. The design is completed and the construction is scheduled to start during 2019. The project is in an Environmental Justice area.

Deerfield – Whately Route 5/10 Reconstruction

Work for the Routes 5/10 resurfacing project in Whately and Deerfield will also include new sidewalks, crosswalks and pedestrian signals at Elm Street. The work will include a short section of Route 5/10 south of the Route 5/10 overpass near Interstate 91 Exit 24, near the Whately Diner. To the north, work will be completed from the I-91 overpass at the intersection of Route 5/10 and Route 116 (Sunderland Road) to just north of the intersection of Route 5/10 and Route 116 (Conway Road). Sidewalks will be constructed along the west side of Route 5/10 between the Whately/Deerfield town line and Elm Street, and on the east side of Route 5/10 between Elm Street and Conway Road (Route 116). The cross-section for the 0.2-mile segment of Route 5 south of I-91 will consist of two 12-foot travel lanes and 6- to 9-foot shoulders. This project is scheduled for construction in 2020.

Greenfield Montague City Road

This project is a mile long. It is from the previously completed Cheapside Intersection Project to the General Pierce Bridge. The project will consist of new sidewalks constructed on both sides of the road where possible, with new/improved crossings. The project is in an Environmental Justice area.

Greenfield Route 2 West of the Rotary

During the public input sessions for the Regional Transportation Plan the lack of sidewalk on the south side of Route 2 to the west of the Greenfield rotary was noted as a concern for pedestrians. There are a number of large scale commercial establishments along this road and there are employees who walk to work. There is currently a MassDOT traffic signal and intersection improvement project at two locations in this area: the intersections of Route 2 and Colrain Road and Route 2 at the Big Y entrance. The project also includes new sidewalks and wheelchair ramps, and is currently in design and scheduled for construction in 2022. The project is in an Environmental Justice area.

Turners Falls Road

Greenfield Turners Falls Road

Turners Falls Road in Greenfield is a steep winding hill that descends from east Greenfield into the village of Turners Falls in Montague via the White Bridge. The route is frequently traveled by pedestrians and bicyclists, but it does not have a sidewalk or a lane/shoulder to accommodate bicycles. On the west side of Turners Falls Road, there is a steep incline with rock outcroppings. On the east side of the road, there is a steep drop down a large hill to the Connecticut River. On numerous occasions concerns over the frequent and regular use of this route (Turners Falls Road and Loomis Road) by pedestrians and the lack of infrastructure was expressed to the FRCOG.

Turners Falls Road links to 5th Street and Canal Street in Turners Falls. It is also a link to the Canalside Trail Bikepath. This route is an important gateway to Turners Falls and connects two large low income and minority areas. The route has a high volume of vehicular, pedestrian and bicycle traffic. The FRCOG examined this route as part of Complete Streets assessment work and provided recommendations for better pedestrian and bicycle accessibility. The deteriorated condition of the sidewalks and curbing on the White Bridge and the Canal Bridge are also of concern along this route. The pedestrian section of the Bridge is closed, and has forced pedestrians using this route to walk in the road. The project is in an Environmental Justice area.

Greenfield Leyden Road

Leyden Road is a frequently used walking route that does not have sidewalks on the 1 mile section from Nash's Mill Road to Leyden Woods Road. It is a main route from Leyden Woods, a densely populated housing complex, into downtown Greenfield, and it intersects with Nash's Mill Road within a ½ mile of the Greenfield Swimming and Recreation Area and the terminus of the Riverside Greenway Bike Path. Additionally, there are densely developed residential neighborhoods, including an affordable housing development on Leyden Road and the surrounding area. This area is also an identified low income and minority area in Franklin County. Leyden Road is served by the Franklin Regional Transit Authority's (FRTA) Route 21 Greenfield Community Route bus. The lack of a sidewalk on this route was the focus of many comments received during public outreach. Installation of a sidewalk is a top priority; however, design needs to be completed and is not currently underway. The project is in an Environmental Justice area.

Greenfield Wisdom Way

This project consists of reconstruction of 0.43 miles of Wisdom Way in Greenfield, from 480 feet east of Petty Plain Road to Mill Street. It consists of reconstruction of retaining walls, drainage repairs, new wheelchair ramps, sidewalk reconstruction, pavement markings, signage, and a new 10-foot wide shared use path along the side of the road. It is projected for construction during 2024. The project is in an Environmental Justice area.

Northfield Streetscape and Safety Improvements Phase II

Phase II of the Northfield Main Street (Route 10/63) Improvement Project involves intersection and pedestrian safety improvements in the center of town. The work will include replacement of raised medians, and relocation of flashing traffic signals; various crosswalk upgrades; new sidewalk construction; and other incidental work. The length of the project is approximately 2.65 miles, beginning at the intersection of Route 10 and Route 63 and extending to Moody Street. Design has not yet commenced. The project is in an Environmental Justice area.

Orange North Main Street

This project will reconstruct the road and repair drainage and retaining walls along a ½ mile section of North Main Street in downtown Orange. As part of this project, ADA accessible sidewalks will be constructed along with traffic signing, landscaping, and streetscape improvements. The project begins on North Main Street at the School Street intersection and ends at the intersection of Lincoln Avenue, a distance of approximately 0.4 miles. Construction is scheduled for 2023. The remainder of North Main Street to the Fisher Hill and Dexter Park Schools is in poor condition with roadway and sidewalk improvements needed. North Main Street connects the commercial downtown to the residential neighborhoods, and is generally walkable if the infrastructure is improved. Pedestrian improvements are important to this area. The project is in an Environmental Justice area.

Orange East Main Street

East Main Street (Route 2A) is a main travel route from downtown Orange to Athol. It is a commercially oriented business area with many of the businesses being automobile oriented in their design and access layout. However, East Main Street is also an important route for pedestrians and bicyclists. It is a key connection to essential services for the population of this area. It is within walking distance of many residential areas and is also part of the FRTA Greenfield/Orange bus route (Route 32). This area was examined for complete streets opportunities, and the construction of sidewalks, highly visible crosswalks and Americans with Disabilities Act (ADA) compliant curb-ramps were recommended. The project is in an Environmental Justice area.

Orange East Water Street

Water Street in downtown Orange links South Main Street to East Main Street. This route travels near Memorial Park, Rodney Hunt Manufacturing, the Orange District Court and FRTA transit stop. This route is an important walking link within the downtown area of Orange. Recommendations to better accommodate pedestrians and bicycles include constructing sidewalks, relocating obstructions in the sidewalks, and painting all crosswalks to be more visible. The project is in an Environmental Justice area.

Orange West River Street

West River Street in Orange is located south of the intersection of North, South, East and West Main Streets (Route 2A and Route 122) in downtown Orange. West River Street is on the south side of the Millers River. The post office is at the corner of South Main Street and West River Street, and is an area with low income and minority populations. Recommendations for improvements include realigning the road and narrowing the travel lanes to allow room for bike lanes and wide sidewalks. Improvements at the intersection of West River and South Main Street are recommended to improve the crosswalk and to shorten the crossing distance for pedestrians by installing a curb extension. The project is in an Environmental Justice area.

South Deerfield Streetscape Improvements

South Deerfield village center is a pedestrian friendly area. A number of streetscape design elements have been conceptually developed. The 2013 Downtown Deerfield Complete Streets and Livability Plan outlined some potential improvements to make the area more pedestrian and bicycle friendly, such as completing a pavement marking plan that accommodates bikes and pedestrian, designating Sugarloaf and Elm Streets as part of the Franklin County Bikeway, and installing landscaping barrels to slow traffic. Sidewalk ramps and crosswalks need to be improved in the area near the intersection of Sugarloaf Street, Elm Street, South Main Street and North Main Street.

Sunderland North Main Street

This project will consist of box-widening and resurfacing North Main Street from the Route 116/47 intersection to Claybrook Drive. It will also include sidewalk reconstruction, new wheelchair ramps, drainage system replacement and new pavement markings and signage. This project is anticipated to be constructed in 2020. The project is in an Environmental Justice area.

State Policies and Programs

Mass in Motion - 1422

Since 2012, the FRCOG has coordinated the Mass in Motion initiative for Franklin County. Mass in Motion is a statewide initiative to promote healthy eating and active living in the places people live, learn, work and play. The goal of the Franklin County Mass in Motion program is to increase physical activities and improve the nutrition of Franklin County and North Quabbin residents.

As part of the Franklin County Mass in Motion project, from July 2015 through September 2018, the planning staff of the FRCOG completed five tasks with funding from the Center for Disease Control's (CDC) 1422 Grant Program as an extension of the Franklin County Mass in Motion Program. These tasks are part of the built environment component of the 1422 Grant to the Franklin County Mass in Motion Program that are intended to help communities improve walking networks, and promote walking for health and everyday transportation. The CDC's 1422 Grant Program supported efforts nationwide to reduce the risk factors associated with childhood and adult obesity, diabetes, heart disease, and stroke. The goal is to make healthy living easier for all Americans.

The tasks that were completed included:

- Mapped the Environmental Justice (EJ) areas in Franklin County and identified walking routes to destinations in and near these areas. EJ areas are defined as those with high concentrations of minorities and/or low income households. Additionally, special attention was paid to identifying the locations of retail establishments in the EJ areas that sell fresh fruits and vegetables.
- Assessed the walkability of routes to fresh fruits and vegetables within five of the EJ areas. Compiled the findings into a report, and outlined the recommended improvements. The five areas that were assessed were chosen based on the recommendations of the FRCOG transportation planning staff with input from the Mass in Motion Steering Committee.

- Updated, reprinted and redistributed the Walk Franklin County Maps based on input from seniors and other potential users of the maps.
- Installed walking wayfinding signs in Turners Falls and Orange.
- Gathered information about trail connections within towns in order to create maps of potential utilitarian walking maps. Drafted maps of trail resources for each town.
- Completed pedestrian counts in Turners Falls for four years as part of a mode shift data collection process.
- Coordinated and facilitated walk audit trainings with seniors in Northfield, Shelburne Falls and South Deerfield.
- Provided information to Towns about the Complete Streets Funding Program and provided assistance to the Towns interested in participating.

While the Mass in Motion 1422 funding ended, this project helped to enhance the interactions between the groups who are involved with Mass in Motion and to encourage utilitarian walking.

American's with Disability Act (ADA) Transition Plans

The American's with Disability Act (ADA) requires communities to complete self-evaluations to identify barriers in programs and activities that prevents persons with disabilities from access. An ADA Transition Plan sets forth steps necessary to complete modifications identified through self-evaluation, and provide a schedule for completing modifications. The FRCOG has assisted towns in Franklin County to compile an ADA Transition Plan. The sidewalk and pedestrian infrastructure is among the public facilities that are evaluated for compliance with accessibility requirements. It outlines a community's commitment to systematically addressing barriers to accessibility.

Ongoing Activities with Both Bicycle and Pedestrian Components

Complete Streets at Bus Stops

During 2017, the FRCOG completed a project to examine four Franklin Regional Transit Authority (FRTA) bus stops for compliance with the principles of Complete Streets. Transit is an important component of a multimodal system and livable community. Most trips using transit begin or end with a walk or bicycle ride. Therefore, improving the road condition for all modes of transportation near bus stops is essential to providing better services. The goal of this project was to assess four bus stop locations in Franklin County and identify potential complete streets improvements that could improve the first and last mile experience. The bus stops that were assessed were selected with input from the FRTA staff. The intention was to provide recommendations to make the first and last mile experience more comfortable and safe for transit riders as they leave the bus and walk, bicycle or drive to other places. The bus stops on East River Street in Orange, Avenue A in Montague at the Carnegie Library/Food City, at Leyden Woods in Greenfield, and Elm Street at Elm Terrace in Greenfield were evaluated.

Safe Routes to School Program

The Massachusetts Safe Routes to School (SRTS) Program is intended to encourage walking and bicycling to school by providing technical assistance and support to schools. It also provides an opportunity for schools that are enrolled in the program to receive assistance in assessing and improving infrastructure within two miles of their school. The program is a grassroots initiative where individual schools design their own activities. Since the completion of the In 2016 Regional Transportation Plan the number of schools enrolled in the SRTS program has increased from eight to thirteen. The schools that are enrolled include:

- Bernardston Elementary School, Bernardston
- Colrain Central School, Colrain
- Erving Elementary School, Erving
- Gill Elementary School, Gill
- Discover School at Four Corners, Greenfield
- Federal Street School, Greenfield
- Math and Science Academy, Greenfield
- Newton Street School, Greenfield
- Greenfield Middle School, Greenfield
- Hillcrest Elementary School, Montague
- Sheffield Elementary School, Montague
- Sunderland Elementary School, Sunderland
- Whately Elementary School, Whately

The FRCOG continues to encourage schools to enroll in the program and has also provided support to schools that have enrolled by assisting with walking assessments.

Complete Streets Funding Program

MassDOT launched the Complete Streets Funding Program on February 1, 2016. The program is intended to encourage municipalities to include complete streets design elements and infrastructure on locally-funded roads. The program provides technical assistance and construction funding to eligible municipalities. To be eligible, towns must attend a training workshop, pass a complete streets policy, and compile a complete streets prioritization plan. Participating towns may apply for up to $50,000 in technical assistance to complete a 5-year complete streets prioritization plan, and up to $400,000 in project construction funding for projects.

The FRCOG has assisted the towns in Franklin County to participate in the program. There are currently nine communities that are taking part in the program. The towns of Buckland, Colrain, Erving, Greenfield, Montague, Orange, Sunderland, and Whately have passed complete streets policies. The town of Deerfield signed a letter of intent in May 2018 to adopt a policy within 1 year. The towns of Buckland, Greenfield, Montague, Sunderland, and Whately have compiled complete streets prioritization plans. Deerfield and Orange are currently compiling complete streets prioritization plans. Greenfield, Montague, Sunderland, and Whately were awarded funding to construct improvements, and Sunderland constructed most of their funded projects during the 2018 construction season.

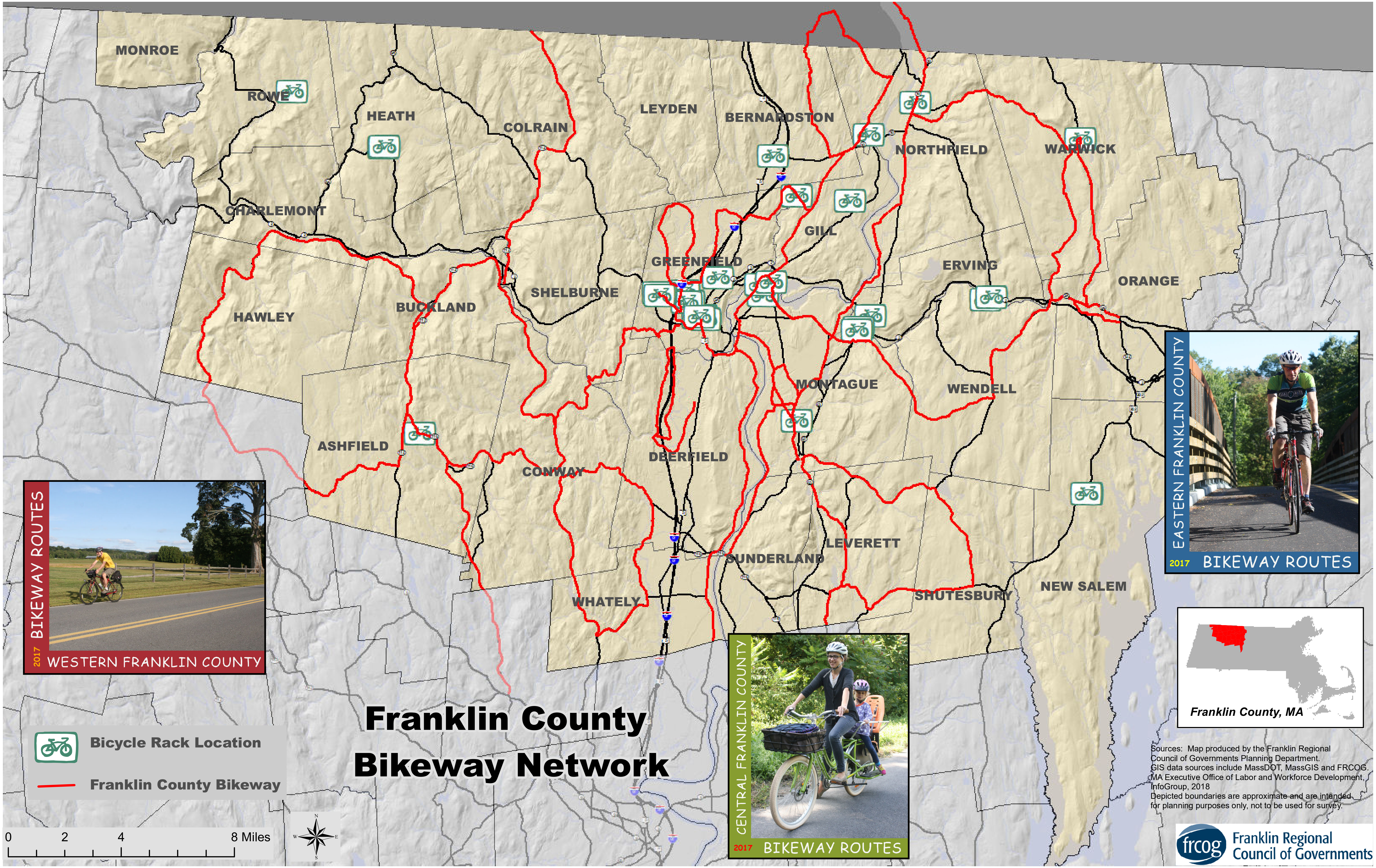
Construction of a new sidewalk on South Main Street in Sunderland with funding from the Complete Streets Program

Recommendations for Bicycle and Pedestrian Facilities

- Pursue funding to install Franklin County Bikeway Logo signs, on the remaining segments of the Franklin County Bikeway as outlined in the *Franklin County Bikeway Plan Update (2009)*.
- Update and distribute Franklin County Bikeway Maps to help promote bicycling in Franklin County.

- Further identify and evaluate the viability of potential extensions of the Franklin County Bikeway and potential connections to other bicycle trails and paths in the greater regional area.
- Assist Towns interested in participating in the Complete Streets Funding Program.
- Support efforts to implement the design work for the Millers River Greenway in Orange and Athol.
- Pursue funding to complete preliminary design for the Erving-Wendell Bike Path.
- Improve roads for bicycle and pedestrian accommodation.
- Consider the issue of winter maintenance and snow removal from sidewalks and ramps.
- Include pedestrian and bicycle infrastructure improvements when appropriate into the scope of road construction projects.
- Implement specific improvements identified in the *Franklin Regional Pedestrian Plan* (2010), *Franklin County Complete Streets Project (2012)* and *Franklin County Completes Streets Project Part 2* (2014), *Complete Streets at Bus Stops* (2018).
- Continue to support and assist Franklin County schools in the Massachusetts Safe Routes to School Program.
- Work to improve the pedestrian network by filling in the gaps where sidewalks and crosswalks are needed and prioritize ADA compliance projects.
- Develop and implement a campaign to educate the public about safe pedestrian practices and promote walking as a transportation option.
- Improve the 5th Street gateway entrance to Turners Falls from Greenfield to better accommodate pedestrian flow and vehicle safety.
- Design and construct Meade Street Bikepath in Greenfield.
- Explore options for better lighting at crosswalks at night.
- Explore the creation of a dock-less Bike Share system.
- Explore options for improvements on Route 5/10 in Deerfield and Whately to make this route better for bicycles.
- Sidewalks are needed in the following locations:
    - On the south side of Route 116 in Sunderland from the Bridgeside Grill to the Northstar School.
    - On the west side of Route 2 in Greenfield to the east of the Home Depot
    - On Route 112 in Buckland for kids walking to the Mohawk Trail Regional School and to the Buckland Recreation Area.

Franklin County Bikeway Network



Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
MA Executive Office of Labor and Workforce Development, InfoGroup, 2018
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments

11

Transportation Related Regional Tourism

2020 Regional Transportation Plan

11 Transportation Related Regional Tourism

Transportation Related Regional Tourism

Tourism is an important topic when considering transportation and travel in Franklin County. The region is rich in scenic, natural, cultural, and historic resources, and visitors are significant contributors to the local economy. Tourism is recognized as an important and growing part of the region's economy. The Massachusetts Office of Travel and Tourism (MOTT) estimated that in 2016 domestic travelers in Franklin County spent over $60 million (source: *MOTT's Economic Impact of Travel on Massachusetts Counties, CY2016*). This represents an 8% increase (taking into account inflation) from traveler expenditures in 2006.

As part of the *2016 Franklin County Regional Transportation Plan* a goal was adopted to promote auto and bicycle touring in the region while also preserving the natural, cultural and historic resources, and increasing access to regional recreational assets. Consequently, encouraging tourism has been the motivation behind a number of regional transportation planning projects. Bicycle related tourism, access to Franklin County by rail, and the Scenic Byways are among the transportation topics discussed in the context of regional tourism. The following section provides an overview of the related work that is currently underway or has been completed since 2016.

Bicycle Tourism

Bicyclists visiting the region are an important component of the Franklin County tourism sector. The region has many low volume scenic roads that are excellent bicycle touring routes. The significance of bicycle tourism and the number of people who travel to Franklin County to bicycle is being documented and discussed as part of several current planning studies.

A number of actions to support bicycle tourism were recommended as part of the 2016 Regional Transportation Plan. Since 2016, the FRCOG has undertaken work that provides information and resources to encourage tourism opportunities related to bicycling throughout the county; encourages the Visitor Centers, Chamber of Commerce and the Massachusetts Office Travel and Tourism (MOTT) to include information on bicycling in Franklin County in their tourism materials; and advocates for bikes and skis to be allowed on the Amtrak regional rail service.

In addition, the FRCOG completed outreach to the bicycle tourism community, researched bicycle tourism programs that have been implemented elsewhere in the country, and formulated next steps for developing a bicycling promotional campaign. During 2017, the FRCOG worked to develop a bicycle tourism plan. The FRCOG completed a survey about ideas for themed rides; created an inventory of regional bicycle events/activities and resources; researched the number of participants in several events; and administered on-line surveys of participants at several events.

During 2018, the FRCOG built on the previously completed research and outreach by developing a Bicycle Friendly Business Program for Franklin County. The program is intended to encourage a bike friendly atmosphere in the region. As part of this program, businesses are encouraged to undertake small initiatives to make their establishments bicycle friendly. By completing initiatives and signing a pledge, the businesses are enrolled in the Bicycle Friendly Business Program. Bike friendly businesses then receive promotional incentives like a window cling to display and listing on a website of participating businesses. Work is currently underway to develop themed bike routes, and coordinate the promotion of bicycling by the regional tourism officials.

The FRCOG also coordinated with the Franklin County Chamber of Commerce to promote recreation in Franklin County. The Franklin County Chamber of Commerce is a business association that serves the 26 towns in Franklin County and also one of the sixteen Massachusetts Regional Tourism Councils. As a tourism council the Chamber's mission is to serve the hospitality industry and attract visitors to our area. The Franklin County Chamber of Commerce is developing a recreational marketing program with a strong emphasis on bicycling for the region, and the FRCOG is collaborating with the effort.

Additionally, the FRCOG provides regional bicycle maps. The FRCOG has four bicycling maps for the region that are routinely updated, reprinted and distributed. The maps highlight Franklin County Bikeway routes (both off-road bike paths and shared roadway sections), terrain, water stops, services available on the routes, and other information that may be helpful to cyclists. The maps were updated and reprinted in 2017, and are widely distributed throughout Franklin County to promote bicycling in the region.

Travel to Franklin County via Amtrak rail service on the Vermonter Line is an important connection for potential bicycle tourists. A goal of the 2016 Regional Transportation Plan was to advocate for bikes and skis to be allowed on this train because, at the time, bikes and skis were not allowed as carry-on luggage. However, the policy was updated April 29, 2016, and now permits bicycles as carry-on luggage from all station stops along the Vermonter (from Washington, DC, to St. Albans, Vermont). Travelers should note that reservations are required, the number of spots for bicycles are limited to three per train, there is a fee to bring a bicycle, and only standard size bikes are permitted. While this updated policy is a positive step for regional recreational tourism, providing additional capacity to carry bicycles on the Vermonter continues to be a priority to allow for groups of bicyclists to travel to Franklin County by train.

Passenger Rail

Passenger rail is also an important transportation option for visitors traveling to Franklin County. On December 29, 2014, passenger rail service returned to Franklin County when the Amtrak's Vermonter was moved back onto the Connecticut River Main Line. The service was reinstated with one daily train north and one train south between Washington, DC and St. Albans, Vermont. In Massachusetts, the Vermonter stops in Springfield, Holyoke, Northampton, and in Franklin County at the John W. Olver Transit Center in Greenfield.

In 2017, the FRCOG completed a report, *Attracting Visitors by Passenger Rail to Franklin County, MA*. The report noted that ridership during the first two years of service (2015 and 2016) at the Greenfield Station has grown. The most updated ridership figures show that this trend has continued. The following table shows the number of passenger arrivals and departures through the Greenfield station:

Table: Amtrak Vermonter Service Arrivals and Departures through Greenfield Station.

Year	Arrivals and Departures
2015	5,315
2016	5,885
2017	6,190

Source: National Association of Railroad Passengers, "Amtrak Service in Greenfield, MA."

Amtrak provides data on the most active trips along the Vermonter route. Amtrak refers to these trips as "city pairs". According to the ridership data on the Vermonter Fact Sheet for 2017, the Greenfield, MA to New York City "city pair" is the sixth most active trip on the route. The top destination from New York City on the Vermonter route is Northampton, MA. According to the ridership data, the most popular designation/origin for ridership to/from Greenfield is New York City with Philadelphia the second most popular designation, and Washington, DC third.

Since the launch of the service on the Connecticut River Main Line, adjustments have been made to the schedule to improve the on-time performance. Additionally, there are plans for the passenger rail service at Greenfield station to be expanded as part of a pilot project starting in the fall of 2019. The pilot project will launch additional passenger rail service between Greenfield and Springfield with stops in Northampton and Holyoke, which will connect to points south on the Hartford Commuter Rail Line. The current Vermonter schedule will be supplemented with four additional trains on weekdays and two additional trains on weekends and holidays. More information about this pilot can be found in Chapter 7, Passenger Rail.

As noted in *Attracting Visitors by Passenger Rail to Franklin County, MA*, it is difficult to determine the reason why increased numbers of passengers are using the Greenfield station. It is not clear if it is because it is closer than other stations that they may have used in the past (such as Amherst or Brattleboro) or if people are using passenger rail more frequently overall. Generally, domestic travel for leisure is increasing, although only a small percentage of the travelers currently choose to take the train. However, there is some generational that may spur continued increases in train ridership. It has been noted that millennials are willing to use different modes of transportation, and that baby boomers prefer affordable travel options. These factors may result in increased numbers of people using the train to travel. In conversations with regional tourism experts it was noted that most tourists to Franklin County are stopping on the way to another destination or during a visit with friends and family.

Attracting Visitors by Passenger Rail to Franklin County, MA, also examined whether Amtrak, the Massachusetts Office of Travel and Tourism (MOTT), and local business and organizations are promoting train travel to Greenfield. As a result of the examination, the some improvements to the promotional efforts were recommended. The Amtrak.com website includes information about the station's host community and nearby traveler services such as parking, rental cars, and lodging. However, this information about Greenfield is not current and lacks details. The MOTT website, MassVacation.com, has a section about rail travel to the state, but offers very limited information about traveling to areas outside of Boston. At the local level, very few of the lodging, attractions, or other entities serving the tourism industry mention traveling by rail as an option to get to Greenfield or other areas of Franklin County.

Additionally, connections for the "last mile" transportation in Franklin County are limited. The Greenfield station is located at the John W. Olver Transit Center, which is the hub for fixed route bus service provided by the Franklin Regional Transit Authority (FRTA). There is limited bus service in the evenings and no weekend service. Depending on when the rail passenger arrives and where they need to go, the fixed bus route may not be an option. There is an Enterprise Rental Car office in Greenfield located less than one mile from the Greenfield station. The company will pick up or drop off customers at the Greenfield station on Monday through Friday. However, the Enterprise office closes before the train arrives on Saturdays and is closed on Sundays.

There are limited taxi and for hire transportation services. There are two taxi companies that serve the Greenfield station, one based in Greenfield and one based in Amherst. There is one private livery service company based in Franklin County that serves Greenfield station as well. Ride-sharing companies, such as Uber and Lyft, offer their services for Western Massachusetts, but these services are limited in Franklin County. With this large service area, the frequency of available drivers to transport people in the Greenfield area is not known. For each of these service providers, travelers will need to contact them directly to arrange for transportation and may need to do so in advance of arriving at the Greenfield station.

Scenic Byways Related Tourism

The scenic, natural, recreational, historic, and cultural resources along the byways appeal to a wide range of interests. As previously noted, byway travelers experience a diverse landscape that includes the classic mill towns of New England, rolling hills, rural farmland, historic architecture, mountains, river valleys, and spectacular vistas. The byways cater to a variety of outdoor activities including hiking, picnicking, kayaking, canoeing, fishing, and skiing. Each byway has a unique history that is representative of different periods of time. In addition, there are many artisans who currently live and work in the area and provide opportunities to experience their crafts. The byways of Franklin County are an interconnected, region-wide network allowing travelers to explore these diverse and rich resources.

There are five scenic byways in Franklin County: the Connecticut River Scenic Byway; the Route 112 Scenic Byway; the Route 116 Scenic Byway; the Route 122 Scenic Byway; and the Mohawk Trail Scenic Byway. Four of the byways are state designated and one of the byways, the Connecticut River Byway (Route 63 and 47), is nationally designated.

Both state and nationally designated scenic byways are part of the National Scenic Byways Program, a grass-roots collaborative effort established to recognize, preserve and enhance selected roads throughout the United States. The Scenic Byways Program recognizes certain roads as scenic byways based on archeological, cultural, historic, natural, recreational and/or scenic qualities. In Massachusetts, eligible roads are officially designated as scenic byways through an act of the Legislature.

The designation is primarily honorary and intended to recognize the special nature of these roads, using it to promote and protect the area as determined by local interests. Until 2011, funding was available through an annual Federal discretionary grant program. Through the discretionary program, a number of projects that were intended to enhance, protect and promote the intrinsic qualities of the Scenic Byways in Franklin County received funding. While there has been no new Scenic Byway funding since Federal Fiscal Year 2012, there are previously funded project that are in the final stages of completion. The funded projects have enhanced existing tourism activities, and laid the groundwork for continued tourism initiatives along the byways.

The following section describes the five scenic byways in Franklin County and describes recently completed or active projects on each byway.

Connecticut River Scenic Byway

The Connecticut River Scenic Byway travels through the heart of the Connecticut River Valley and neighboring farmland, floodplains, and historic villages from northern New Hampshire and Vermont through Franklin County into Hampshire County in Massachusetts. Along the byway corridor, there are many sites and resources that highlight the rich history of the area dating back to the 1600s and the early inhabitation by Native Americans and Colonial settlers. The Connecticut River Valley's history and farming heritage is still reflected in the many surviving architectural resources that can be seen along the byway. The Franklin County section of the byway, consisting of Route 63 in the towns of Northfield, Erving, and Montague, and Route 47 in Montague and Sunderland, was designated as a state scenic byway by the Massachusetts Legislature in 2000, and the Hampshire County section of the byway (Route 47 in Hadley and South Hadley) was designated in 2003. In 2009, the Connecticut River Scenic Byway was then designated as a National Scenic Byway. This remains the only nationally designated scenic byway in the Commonwealth.

Recently Completed Projects

Connecticut River Scenic Byway Corridor Management Plan Update

A Corridor Management Plan was originally completed for the Byway in 1998, and provided recommendations for promoting economic opportunities while protecting the natural, cultural, and historic resources of the Byway. With funding through the National Scenic Byway Program, an update of the Corridor Management Plan was completed in 2016.

Projects Underway

Ervingside Streetscape Improvements

The Connecticut River Scenic Byway passes through the Town of Erving along Route 63. A one-mile section of this route was awarded funding to complete the design and construction of sidewalk and streetscape improvements. The project area includes the Erving section of Millers Falls and the adjacent residential neighborhood known as Ervingside. The project is intended to improve pedestrian access and safety. Plans for the sidewalk and streetscape elements are completed and are scheduled for construction in spring 2019.

Mohawk Trail Scenic Byway

The Mohawk Trail Scenic Byway is one of the earliest scenic byways in New England, receiving its designation in 1953. The byway travels on Route 2 and 2A through Berkshire, Franklin and Worcester counties. In Franklin County, the byway travels through the towns of Charlemont, Buckland, Shelburne, Greenfield, Gill, Erving and Orange.

The western section of the byway (Williamstown to Greenfield) follows the east-west route first used by Native Americans between the Hudson River and the Connecticut River Valleys. The route continued to be used for travel by colonists and eventually was upgraded to support modern forms of transportation. The western section of the byway was the first state road to be designated and constructed as a scenic tourist route, opening amid much fanfare in 1914.

The eastern section (Greenfield to Athol) also first developed as a foot path of the Native Americans. The Europeans from the Connecticut River Valley later used this trail to settle the northern interior of Massachusetts and for commerce by horse and cart. Later, entrepreneurs from the cities in eastern New England built the Fifth Massachusetts Turnpike along much of the original pathway. During this development, the road was changed and improved to accommodate new modes of transportation and infrastructure.

There are no current Scenic Byway projects planned for the Mohawk Trail at this time.

Route 112 Scenic Byway

The Route 112 Scenic Byway was officially designated as a scenic byway by the Massachusetts Legislature in 2004. The Route 112 Scenic Byway travels through the Towns of Colrain, Shelburne, Buckland, and Ashfield in Franklin County and the Towns of Goshen, Cummington, Worthington, and Huntington in Hampshire County. It travels through historic town centers, working farms, scenic rivers, and majestic forests with beautiful mountains providing a backdrop. The corridor is rich in natural, cultural, and historic resources. In addition, the byway intersects with the Mohawk Trail Scenic Byway to the north and the Jacob's Ladder Trail Scenic Byway to the south. A Corridor Management Plan for the Route 112 Scenic Byway was completed in 2009.

There are no current Scenic Byway projects planned for Route 112 at this time.

Route 116 Scenic Byway

The Route 116 Scenic Byway is the most recently designated Scenic Byway in Franklin County. In 2008, the Massachusetts Legislature designated Route 116 in the towns of Deerfield, Conway, Ashfield, Plainfield, Savoy, and Adams as a scenic byway. The byway travels 39 miles from the Deerfield/Sunderland town line (at the Connecticut River) to downtown Adams (in Berkshire County) at the intersection of Route 116 and Route 8. In

Franklin County, the Byway travels through the towns of Deerfield, Conway, and Ashfield. In Deerfield, the byway route follows the historic route of Route 116 (the current Route 116 bypass was constructed in the 1960s) onto Sugarloaf Street through historic South Deerfield center onto Elm Street and north onto Routes 5/10/116. The byway rejoins Route 116 to the west of South Deerfield center and travels west to historic Conway center, which travels past the Burkeville Covered Bridge which is on the National Register of Historic Places and has recently been restored. Route 116 continues west through historic Ashfield center, where it intersects with Route 112, which is also a designated scenic byway.

There are no current Scenic Byway projects planned for Route 116 at this time.

Route 122 Scenic Byway

In 2005, the Massachusetts Legislature designated Route 122 in the Towns of Paxton, Rutland, Oakham, Barre, Petersham, Orange, and New Salem as a scenic byway. The Route 122 Scenic Byway travels from the Paxton/Worcester town line to downtown Orange. Paxton, Rutland, Oakham, Barre, and Petersham are in Worcester County, and New Salem and Orange are in Franklin County. The Franklin County section of the byway travels along the northern end of the Quabbin Reservoir. In Orange, the byway terminates at the intersection of Route 122 and Route 2A, part of the Mohawk Trail Scenic Byway.

There are no current Scenic Byway projects planned for Route 122 at this time.

WESTERN
MASSACHUSETTS
SCENIC BYWAYS

Western Massachusetts Scenic Byways Logo

Western Massachusetts Scenic Byways Promotional Campaign

It is important that tourist information and services be available to travelers. Information including publications, brochures, maps, websites, and telephone numbers are crucial to encouraging tourism along the scenic byways. The corridor management plans for the scenic byways contain inventories of the cultural, historical, natural, scenic, recreational, and commercial resources within each byway area. Through the Scenic Byway Marketing Project, enhanced informational resources and the byway website were developed to assist visitors to the area and byway travelers.

The Western Massachusetts Scenic Byway Marketing Project was a collaborative effort of the Berkshire Regional Planning Commission (BRPC), the Central Massachusetts Regional Planning Commission (CMRPC), the FRCOG, the Pioneer Valley Planning Commission (PVPC), and the Massachusetts Department of Transportation (MassDOT) to create unified promotional materials for the seven scenic byways in western Massachusetts. The project included the development of individual byway logos, advertising materials, way-finding signs and a website. Way-finding signs were installed on all seven of the Scenic Byways. A website for the Scenic Byways in western Massachusetts was created, and http://www.bywayswestmass.com was launched in June 2013. The website contains information about points of interest and attractions along and near the seven Scenic Byways. The website is maintained and updated regularly in order to ensure that the information is up-to-date. A complete review and update was undertaken during 2018.

There are no current Scenic Byway marketing projects planned at this time.

Land protected in Charlemont on the Mohawk Trail Scenic Byway.

Scenic Byway Land Protection Project

The FRCOG worked with the Franklin Land Trust, MassDOT, the Massachusetts Department of Agriculture, the Massachusetts Department of Conservation and Recreation, and the Massachusetts Department of Fish and Wildlife to permanently protect important scenic, natural, and agricultural landscapes along the scenic byways in Franklin County. The project will conclude in June 2019 with a total of 1,573 acres permanently protected from future development. Below is a table of the acres protected on each of the Scenic Byways through this project.

Table 11-2 Acres of Land Protected on Each Byway

	CT River	MT Trail	Route 112	Total
Acres Protected	923.28	557.14	53.6	1534.02

Figure 11-1 Proportion of the Total Acres Protected by Byway

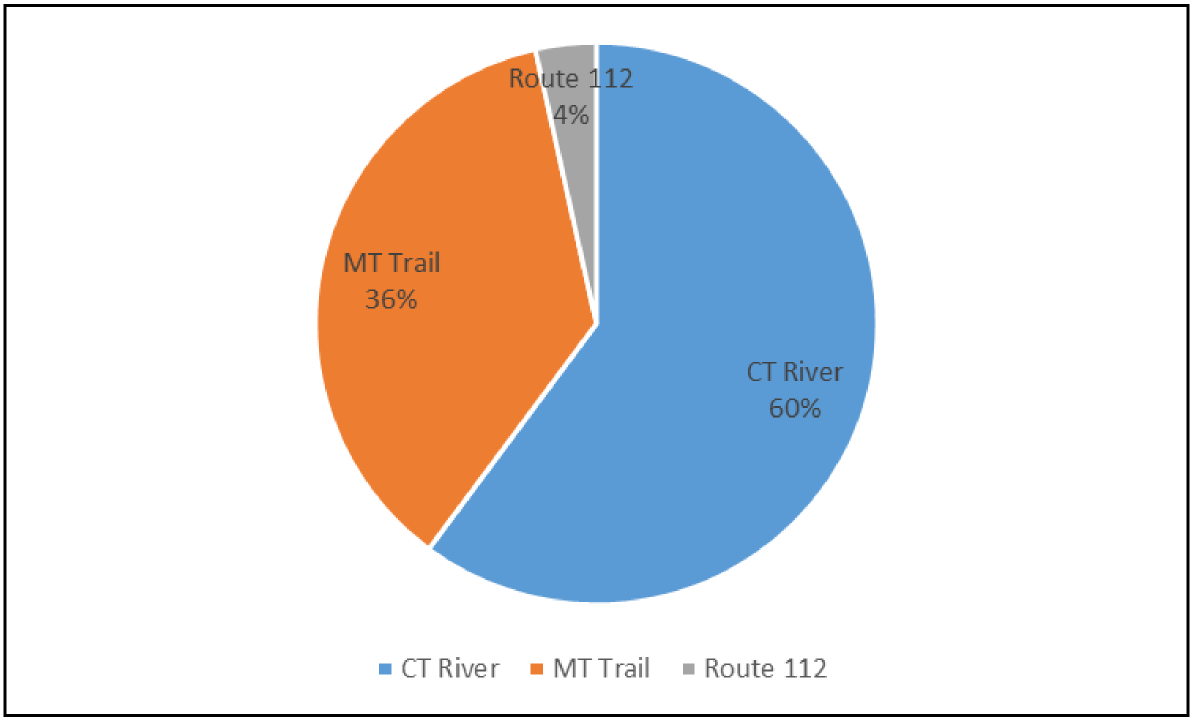
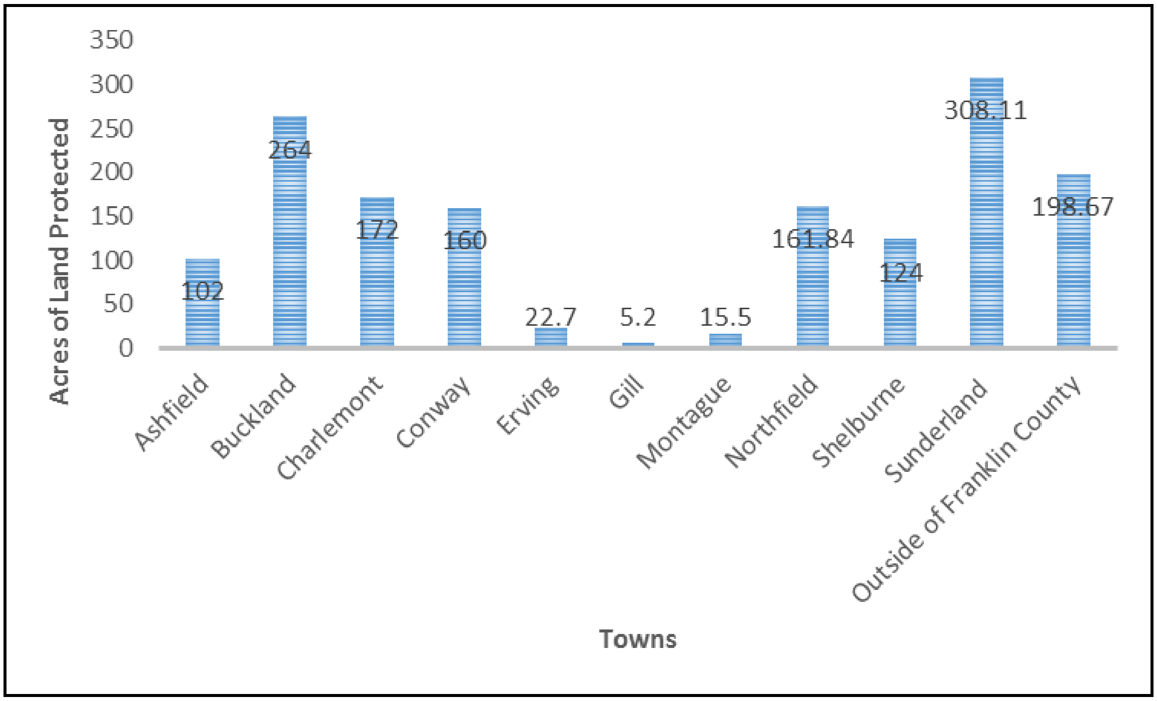


Figure 11-2 Proportion of the Total Acres Protected by Town



Promotion of Regional Tourism

The tourism and hospitality industry are important considerations as the future of the regional transportation system is planned. Transportation planning should reinforce and build on this momentum in the region to promote all of the region's many tourism opportunities.

Recommendations

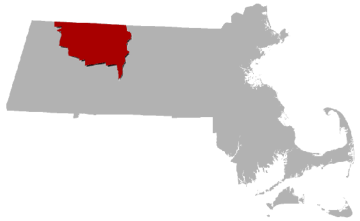
- Develop marketing and informational resources to promote Franklin County as a travel destination.
- Develop information and resources to encourage tourism opportunities related to bicycling throughout the county.
- Collaborate with the Visitors Centers, Chambers of Commerce, and the Massachusetts Office of Travel and Tourism (MOTT) to include information on bicycling in Franklin County in their tourism materials.
- Create advertisements to be used in bicycling magazines and websites promoting bicycling in Franklin County.
- Develop itineraries for bicycling and walking in the region.

- Advocate for additional capacity for carrying bikes on Amtrak regional rail service.
- Support the expansion of regional rail service both north-south and east-west.
- Improve marketing of regional rail.
- Develop additional local transportation options to connect rail passengers from the Greenfield station to accommodations and attractions.
- Request that Amtrak update its webpage for the Vermonter route to include an accurate service description and local information in the Route Guide for Greenfield.
- Promote Franklin County and its assets as a destination or a place to visit for rail passengers on the Vermonter route by coordinating with the local tourism groups, chambers of commerce, and/or business associations to promote travel by rail.
- Work with MA Office of Travel and Tourism (MOTT) to expand the description of rail service to Massachusetts on MassVacation.com.
- Explore opportunities to work with the local tourism groups, chambers of commerce, and/or business associations to develop travel itineraries that focuses on visiting by rail.
- Continue work to permanently protect scenic and agricultural lands along the scenic byways by purchasing conservation restrictions and/or agricultural preservation restrictions from willing landowners.
- Continue work to develop initiatives to market the byways of Western Massachusetts as travel destinations.
- Implement the recommendations of the corridor management plans for each of the scenic byways.

Franklin County Massachusetts

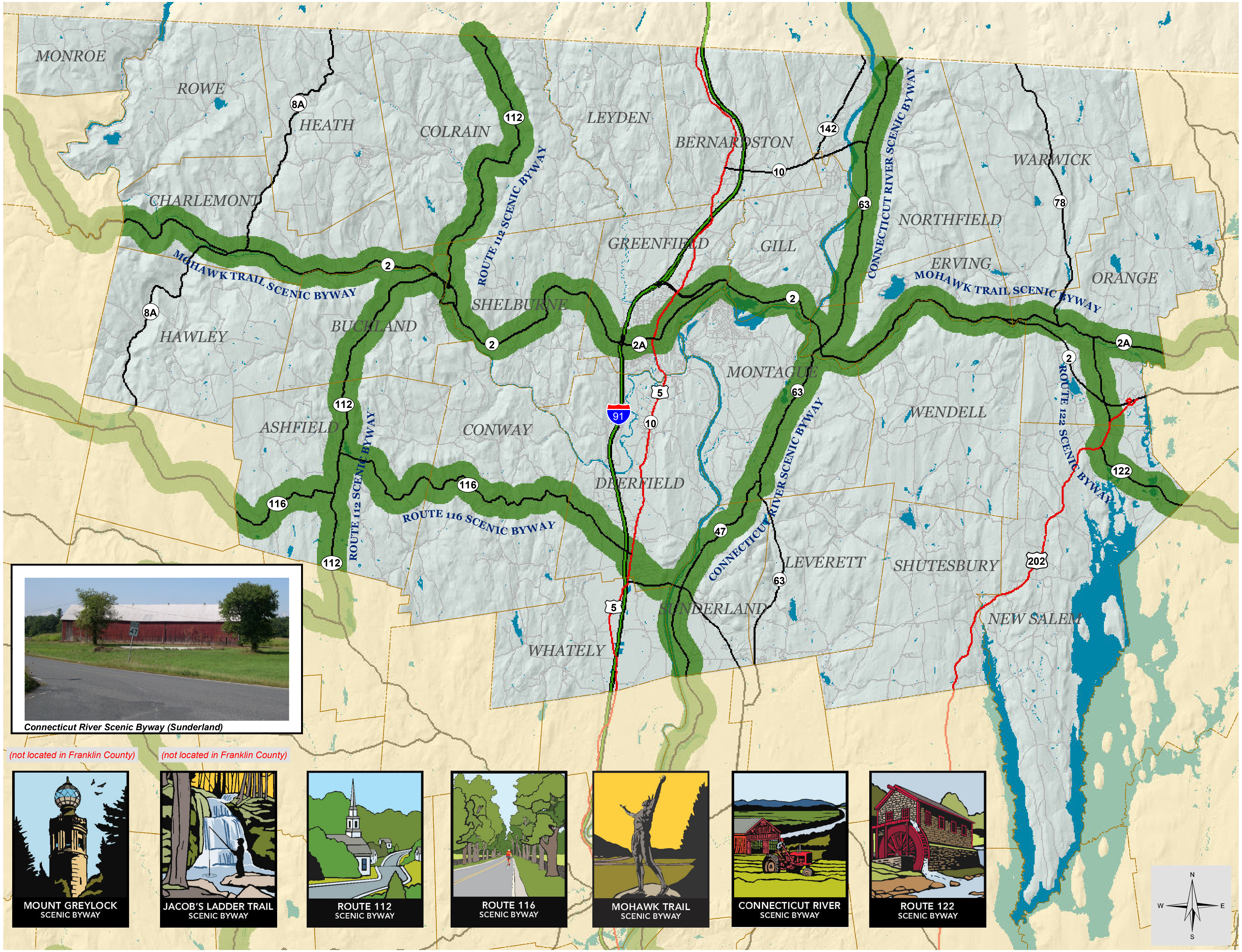
Federal & State Designated Scenic Byways

🟩 Scenic Byway



Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments



Connecticut River Scenic Byway (Sunderland)

12

Resiliency & Climate Change

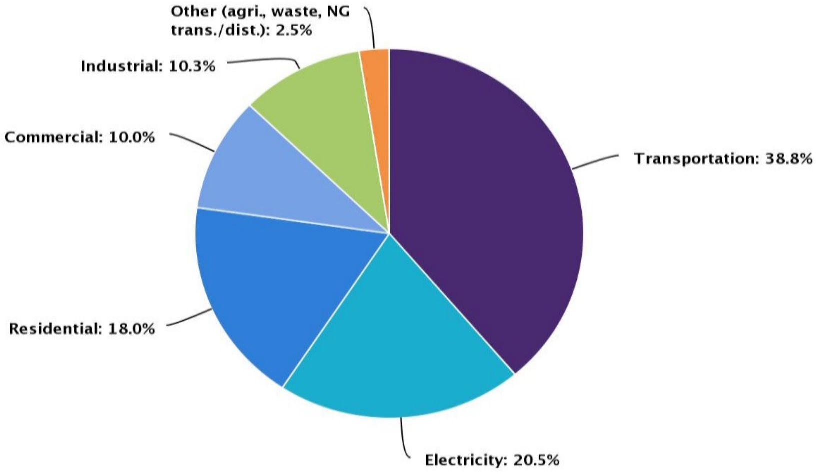
2020 Regional Transportation Plan

12 Resiliency and Climate Change

The promotion of energy efficient and sustainable transportation systems is an issue that has increasingly become a priority both regionally and nationally. Impacts of climate change and higher fuel costs have contributed to a strengthening focus on reducing the personal use of automobiles and also on using new and developing technologies that create more fuel efficient and cleaner vehicles.

Climate change is a result of global warming, which is largely caused by human activities, specifically the production of greenhouse gases (GHG) from burning fossil fuels like coal, oil, and natural gas. Almost 30 percent of all GHG emissions in the United States came from the transportation sector in 2016. In Massachusetts, almost 40 percent of GHG emissions in 2015 came from transportation (Figure 1), with nearly half of the contribution coming from passenger vehicles alone. It is projected that transportation will continue to account for more than one-third of Massachusetts' total GHG emissions in 2020, and is the only sector expected to increase in emissions, as gains in vehicle fuel efficiency have been offset by an increase in vehicle miles traveled.[1]

Figure 1: Massachusetts GHG Emissions by Sector



Source: *Massachusetts Clean Energy and Climate Plan for 2020: 2015 Update.* Massachusetts Executive Office of Energy and Environmental Affairs, December 31, 2015.

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[1] *Massachusetts Clean Energy and Climate Plan for 2020: 2015 Update.* Massachusetts Executive Office of Energy and Environmental Affairs, December 31, 2015; and *Choices for Stewardship: Recommendations to Meet the Transportation Future, Volume I.* Commission on the Future of Transportation in the Commonwealth, December 2018.

Impacts of Climate Change on Transportation Infrastructure

Transportation-related GHG emissions contribute significantly to climate change. In turn, climate change also impacts the transportation system. Resilient MA, the Climate Change Clearinghouse for the Commonwealth, identifies the following impacts of climate change on transportation infrastructure in Massachusetts:

- Extreme heat may cause heat stress in materials like asphalt and increase the frequency of repairs and replacements;
- Flooding caused by heavier downpours may damage roads and stormwater infrastructure like undersized culverts;
- More nuisance ponding on roads may slow commutes and commerce;
- Rapid freeze thaw cycles may cause damage to road surfaces;
- Costly damage to roads, bridges, and rail networks may occur as a result of extreme nor'easters, hurricanes, severe thunderstorms and blizzards;
- Extensive flood damage to roads and bridges could dramatically affect commerce and public health and safety especially where alternative routes aren't available;
- High winds could down power lines and poles adjacent to roads; and
- Communities and critical facilities could be cut off after storms.[2]

The impacts of climate change are already being felt in Franklin County, and include an increased number of very hot days, higher average rainfall and temperatures, and more severe storms. These effects also, in turn, impact the performance of our infrastructure. Incorporating climate change adaptation strategies into planned infrastructure improvements will increase our resiliency to the impacts of climate change now and in the future.

Sustainable transportation, climate change resiliency, and the reduction of GHG's is a priority for the Franklin County Transportation Planning Organization (FCTPO). This chapter will discuss ongoing and recommended initiatives that encourage sustainable transportation and the reduction of GHG emissions in the region. In addition, this chapter will examine ways in which the transportation infrastructure system can become more resilient to the changing conditions in the region as a result of climate change.

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[2] http://resilientma.org/sectors/transportation. Accessed December 17, 2018.

Guiding Policies, Programs and Plans

The Commonwealth of Massachusetts, FRCOG, and other regional organizations have demonstrated their commitment to reducing GHG emissions. Within the past few years, the following policies and plans have been enacted to help reduce the level of GHGs.

Metropolitan Planning Organizations and the Global Warming Solutions Act

The Commonwealth's Global Warming Solutions Act (GWSA) of 2008 requires statewide reductions in greenhouse gas (GHG) emissions of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050. As part of the GWSA, the Executive Office of Energy and Environmental Affairs developed the Massachusetts Clean Energy and Climate Plan (CECP, updated in 2015), which outlines programs to attain the 25 percent reduction by 2020. The 2015 plan update notes that while vehicle efficiency has improved over time, an increase in vehicle miles travelled (VMT) in the State has offset these gains, making transportation the only sector to see increases in emissions since 1990. In December 2018, Massachusetts along with twelve other states and Washington, DC entered into an agreement to reduce transportation related emissions by 2040.[3]

The Commonwealth's thirteen metropolitan planning organizations (MPOs) are integrally involved in helping to achieve greenhouse gas reductions mandated under the GWSA. The MPOs work closely with MassDOT and other involved agencies to develop common transportation goals, policies, and projects that would help to reduce GHG emission levels statewide. For example, one of the programs in the CECP is MassDOT's sustainability initiative known as GreenDOT. GreenDOT policy goals were developed in accordance with the GWSA, and are as follows:

- Reduce greenhouse gas (GHG) emissions;
- Support smart growth development; and
- Promote the healthy transportation modes of walking, bicycling, and public transit.

The FCTPO shares in these goals and is working to meet the specific requirements of the GWSA regulation – *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation (310 CMR 60.05)*. The purpose of this regulation is to assist the Commonwealth in achieving their adopted GHG emission reduction goals by:

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[3] Transportation and Climate Initiative Statement (2018). https://www.transportationandclimate.org/nine-states-and-dc-design-regional-approach-cap-greenhouse-gas-pollution-transportation.

- Requiring MassDOT to demonstrate that its GHG reduction commitments and targets are being achieved;
- Requiring each MPO to evaluate and track the GHG emissions and impacts of its Regional Transportation Plan and Transportation Improvement Program; and
- Requiring each MPO, in consultation with MassDOT, to develop and utilize procedures to prioritize and select projects in its RTP and TIP based on factors that include GHG emissions and impacts.

Meeting the requirements of this regulation will be achieved through the transportation goals and policies contained in the 2020 Regional Transportation Plans, the major projects planned in the RTPs, and the mix of new transportation projects that are programmed and implemented through the Transportation Improvement Program. The GHG tracking and evaluation processes enable the MPOs to identify the anticipated GHG impacts of the planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects**.** This approach by the MPO is consistent with the greenhouse gas reduction policies of promoting healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments; as well as supporting smart growth development patterns through the creation of a balanced multi-modal transportation system.

All of the MPOs and MassDOT are working toward reducing greenhouse gas emissions with plans, actions, and strategies that include (but are not limited to):

- Reducing emissions from construction and operations;
- Using more fuel-efficient fleets;
- Implementing and expanding travel demand management programs;
- Encouraging eco-driving;
- Providing mitigation for development projects;
- Improving pedestrian, bicycle, and public transit infrastructure and operations (healthy transportation); and
- Investing in higher density, mixed use, and transit-oriented developments (smart growth).

Regional GHG Tracking and Evaluation in RTPs

MassDOT coordinated with MPOs and regional planning agency (RPA) staff on the implementation of GHG tracking and evaluation in development of each MPO’s 2012 RTPs.

This collaboration has continued for the MPOs through subsequent RTPs including this update. MassDOT, using its statewide travel demand model, provides the FCTPO with statewide estimates of CO_2 emissions resulting from the collective list of all recommended significant projects in all the Massachusetts RTPs combined (and supplemented by CO_2 emission reduction results for smaller, “off-model” projects supplied by the MPOs). The results of this modeling can be found in Chapter 14: Air Quality Conformity Determination.

Working closely with MassDOT, the FCTPO continues to make efforts toward progress through planning activities to meet the GHG reductions targets and comply with the requirements of the GWSA. The FCTPO certifies that it has made efforts to minimize the GHG emissions and impacts from the recommended projects (see certification at the end of this chapter). Potential TIP projects are subjected to an evaluation process using Transportation Evaluation Criteria (TEC). The TEC scores are compiled by looking at six different topic areas: condition, mobility, safety, community effects, land use & economic development, and environmental effects. The last criterion, environmental effects, specifically examines a project’s potential impact on air quality and climate. In addition to minimizing the GHG impacts from proposed projects, the FRCOG staff has sought public input on how to further reduce GHGs in the region. This topic received some of the most attention during the public outreach for the development of this RTP, only preceded by the need for more public transit. The results from the public outreach surveys distributed for this update show that “pollution from transportation” was a High Concern for respondents. Respondents suggested that the availability of cleaner forms of transportation (walking, bicycling, and transit) should be a major priority for the region.

Executive Order 579: Commission on the Future of Transportation in the Commonwealth

In January 2018, Governor Baker signed Executive Order No. 579 establishing the Commission on the Future of Transportation in the Commonwealth to advise the Baker-Polito Administration on future transportation needs and challenges between 2020 and 2040. The Commission focused on five key areas anticipated to have a dramatic impact on transportation in the future:

- Climate and resiliency;
- Transportation electrification;
- Autonomous and connected vehicles, including ride-sharing services;
- Transit and mobility services; and
- Land use and demographic trends.

The Executive Order instructed the Commission to address the following questions in terms of climate and resiliency: What changes will be needed to reduce transportation greenhouse gas emissions consistent with Commonwealth targets for 2040? What kinds of investments will be needed to make transportation infrastructure more resilient? In December 2018, the Commission published *Choices for Stewardship: Recommendations to Meet the Transportation Future*. Several key challenges are identified in the report relating to climate and resiliency:

The transportation system needs to be de-carbonized: In Massachusetts the transportation sector is both the largest and the fastest growing emitter of GHGs. If the Commonwealth is to meet its goal of reducing overall GHG emissions 80 percent by 2050, a large proportion of the emission reductions will have to come from transportation while accelerating conversion of cars and light duty trucks to electricity or other zero emission technologies is a key strategy, it is not enough by itself.

Transportation infrastructure needs to be made resilient to a changing climate: New infrastructure must be sited and designed with the climate of the future firmly in mind; existing infrastructure will need to be systematically retrofitted over time to withstand sea level rise, more frequent and violent precipitation, and hotter summers.

The report states the following:

> "Transportation is both impacted by climate change and contributes to it. The transportation sector accounts for 40 percent of all GHG emissions in Massachusetts, and nearly half of these are from passenger vehicles alone. Addressing the transportation sector's impact on the Commonwealth's ability to meet GHG emission reduction goals is not only prudent, but absolutely necessary."

Recommendations of the report that promote a resilient, sustainable transportation network in the State and that are most relevant to Franklin County include:

- **Prioritize investment in public transit as the foundation for a robust, reliable, clean, and efficient transportation system**. The report notes that public transit can reduce pollution and is key to meeting the Commonwealth's GHG reduction and related climate goals.

- **Enable and promote a ubiquitous electric charging (and/or alternative fuel) infrastructure to support the widespread deployment of electric and autonomous vehicles.** The report states that to meet the Commonwealth's emission reduction goals outlined in the Global Warming Solutions Act (GWSA), the Commonwealth needs all types of vehicle owners to significantly reduce reliance on fossil fuels. However, only through a robust charging network will consumers have the necessary confidence in reliability for wide-scale EV adoption.

- **Establish a goal that beginning in 2040, all new cars, light duty trucks, and buses sold in Massachusetts will be electric or use another technology that meets the same emissions standards.** Achieving the Commonwealth's 2050 GWSA mandate will require the near-complete transition of our vehicle fleet (cars, trucks, and buses) to electric vehicles or other zero-emission vehicle (ZEV) technology.
- **Collaborate with other Northeast and Mid-Atlantic states to establish a regional, market-based program to reduce transportation sector greenhouse gas (GHG) emissions.** Closely following the release of the Commission's report, Massachusetts joined with twelve other northeast states and the District of Columbia to study a market-based program to reduce regional emissions from transportation. The study will be completed over the course of 2019.
- **Make all current and future critical state and municipal transportation infrastructure resilient to a changing climate.** The report states that to protect our investments and maintain mobility before, during, and after a weather event, it is vital that the Commonwealth make its assets as resilient as possible to a climate that is likely to only become more damaging.

Municipal Vulnerability Preparedness (MVP) Program

The Municipal Vulnerability Preparedness grant program (MVP) provides support for cities and towns in Massachusetts to begin the process of planning for climate change resiliency and implementing priority projects. The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans. Communities who complete the MVP program become certified as an MVP community and are eligible for MVP Action grant funding and other opportunities. Action grants can fund a wide range of projects including those that increase transportation resiliency to impacts from climate change. To date, seven Franklin County towns are certified as MVP communities. The FRCOG is a certified provider under the MVP program and can assist towns with completing the assessment and resiliency plan. Many of the recommendations from the Franklin County MVP plans include transportation-related action items - specifically around the issues of failing culverts, localized flooding, and rail freight incidents.

Multi-Hazard Mitigation Planning

The *State Hazard Mitigation and Climate Adaptation Plan* (SHMCAP) for the Commonwealth was adopted on September 17, 2018, in fulfillment of Governor Baker's Executive Order 569 on climate change. This plan is the first of its kind to comprehensively integrate climate change impacts and adaptation strategies with hazard mitigation planning. The FRCOG is utilizing the State's plan as a model for town hazard mitigation plan updates that will be developed over the next several years. Multi-Hazard Mitigation Plans assess a town's vulnerability to various natural and man-made hazards and identifies action items to mitigate these risks. Current and future impacts from climate change will be integrated into the plan updates. Vulnerability assessments include evaluating impacts of flooding, severe storms, extreme heat, and man-made hazards on a town's transportation infrastructure. Towns with approved plans are eligible to apply for mitigation grants from the Massachusetts Emergency Management Agency (MEMA).

Green Communities Program

In 2008, Massachusetts created the Green Communities Program, which uses funding from auctions of carbon emissions permits under the Regional Greenhouse Gas Initiative (RGGI), to reward communities that achieve Green Communities designation by meeting five clean energy benchmarks:

1. Adopting local zoning bylaws or ordinances that allow "as-of-right siting" for renewable and/or alternative energy research & development, manufacturing, or generation facilities;
2. Adopting an expedited permitting process related to the as-of-right facilities;
3. Establishing a municipal energy use baseline and a program to reduce energy use by 20 percent within five years;
4. Purchasing only fuel-efficient vehicles for municipal use; and
5. Requiring all new residential construction over 3,000 square feet and all new commercial and industrial real estate construction to reduce lifecycle energy costs (i.e., adoption of an energy-saving building "stretch code").

Currently, 24 towns in Franklin County are officially designated as Green Communities and are eligible to apply for grants to fund municipal energy efficiency and renewable energy projects. Transportation-related projects that have been eligible for funding in recent Green Community grant rounds include: vehicular efficiency measures, such as idle reduction equipment and after-market hybrid retrofit kits; incremental costs of hybrid vehicles, plug-in hybrid or fully electric vehicles; and publicly accessible electric vehicle charging station equipment.

Massachusetts Clean Cities Coalition

The Massachusetts Clean Cities Coalition (MCCC) is part of a nationwide partnership sponsored by the U.S. Department of Energy (DOE) Clean Cities Program. Clean Cities aims to reduce petroleum consumption in the transportation sector and support development of infrastructure necessary to make alternative fuel vehicles a viable transportation option. The MCCC meets quarterly to discuss clean transportation opportunities for municipalities, transit fleets, and the transportation sector in general. MCCC also partners with the MA Department of Energy Resources (DOER) on the MOR-EV program, which provides rebates up to $1,500 to consumers who purchase an electric vehicle (EV).

UMass Clean Energy Extension

The UMass Clean Energy Extension was established with funds from the MA Department of Energy Resources (DOER) and provides a resource dedicated to reducing market barriers and accelerating the adoption of clean energy for Massachusetts cities and towns, businesses, institutions, farms, low income and other multi-unit housing, and others. The UMass Clean Energy Extension provides technical support and advice upon request, and proactively seeks opportunities to promote clean energy projects.

In order to help municipalities cut costs and achieve greater fuel efficiency, UMass CEE's Greening Municipal Fleets initiative is researching the obstacles to fuel use reduction and compiling information regarding how to overcome these challenges, with a focus on small, rural communities where vehicle fuel usage can account for 35% or more of municipal energy usage.

Sustainable Franklin County: A Regional Plan for Sustainable Development

In 2010, the U.S. Department of Housing and Urban Development (HUD) announced the Sustainable Communities Planning Grant Program. In the 2010 Budget, Congress provided a total of $150 million to HUD for the Sustainable Communities Initiative to improve regional planning efforts that integrate housing and transportation decisions and increase the capacity to improve land use and zoning. In the Fall of 2010, a consortium, with the FRCOG as lead partner, received a $425,000 grant under this program for Franklin County. Through this grant, the FRCOG created *Sustainable Franklin County: a Regional Plan for Sustainable Development.* The goals and recommendations in the plan were identified through an extensive public outreach process and focus on sustainable development within the context of a rural region. It not only examines issues associated with transportation, but also comprehensively looks at the effects of land use, housing, economic development, natural and cultural resources, and infrastructure on sustainability. The top sustainable transportation goals identified in the public outreach process for the plan were:

1) Increase availability and use of public transit;
2) Restore passenger rail service; and
3) Increase bicycle/pedestrian facilities and promote walking and bicycling.

Current Planning Activities

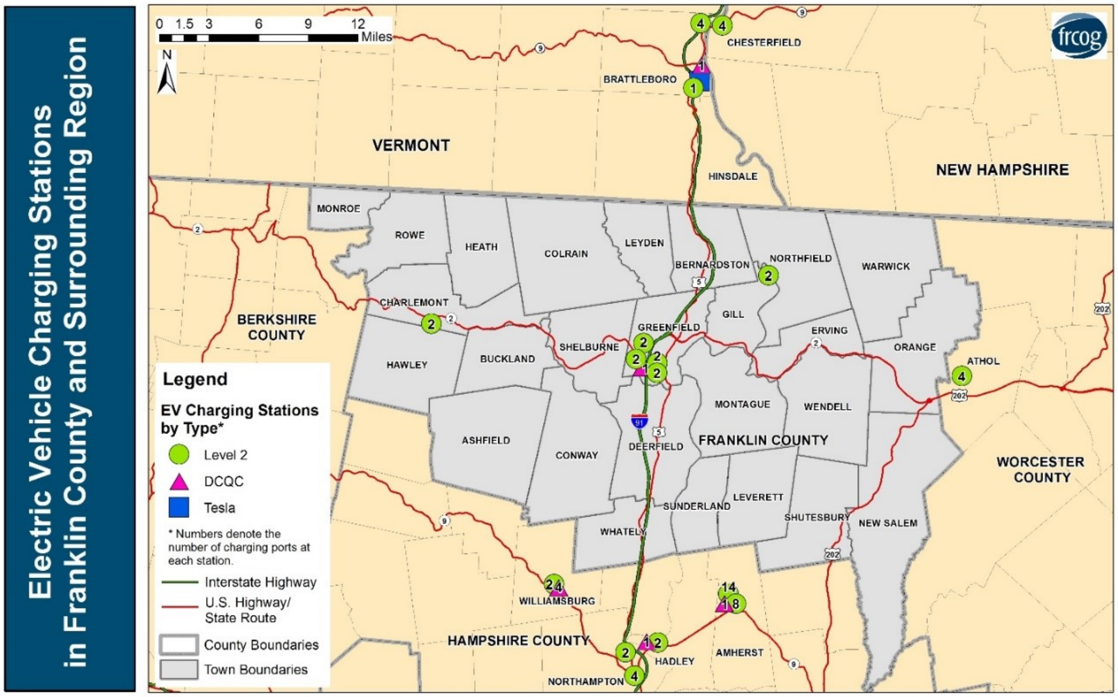
The FRCOG recognizes the rural nature of the Franklin County region and acknowledges that traveling by automobile is often the most convenient or only option. However, with an aging population and more attention being focused on environmental issues, it is important to discuss options for reducing dependence on the single-occupied vehicle and increasing alternative transportation options. The Franklin County region and the FRCOG have been working on bringing sustainable transportation to the area and mitigating GHGs. In fact, the FRCOG recently received an Excellence in Commuter Options (ECO) Award from the state for its work in supporting and promoting alternative transportation in Franklin County. This section highlights the many planning activities that have recently been completed or are ongoing in this topic area.

Electric Vehicles Charging in Greenfield

Electric Vehicle Charging Infrastructure

Electrifying transportation is one way to reduce GHG emissions and transportation's contribution to climate change. According to the Commission on the Future of Transportation, electric vehicles (EVs) "emit far less than conventional vehicles, especially when grids rely on renewable energy rather than carbon-based fuels to power them. In terms of emissions impact, an EV in New England is equivalent to achieving a fuel economy of 103 miles per gallon in a conventional vehicle, and national research shows that midsize EVs are estimated to reduce GHG emissions by 51% compared to midsize gasoline-powered vehicles."[4] Massachusetts has committed to electrifying all vehicles by 2050, and together with seven other states, has pledged to have 3.3 million electric vehicles on the road by 2025. However, "only through a robust charging network will consumers have the necessary confidence in reliability for wide-scale EV adoption."[5]

In 2017, FRCOG staff assessed the demand for electric vehicle charging stations in the region with the goal of determining if the existing infrastructure is adequate or if additional charging stations are needed. The study found that existing public charging stations in Franklin County are well used and additional stations are needed throughout the region (see map below). FRCOG staff are working with MassDOT to install public charging stations at park and ride facilities in Franklin County, and continue to explore opportunities for municipalities to install public charging stations at town-owned properties.



Park and Ride Lots

Park and ride lots provide an opportunity to those who do not live on or within walking distance of public transit routes to travel to an intermediary location and take public transportation or carpool with other commuters. There are currently several park and ride lots in Franklin County. They include:

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[4] *Choices for Stewardship: Recommendations to Meet the Transportation Future, Volume I.* Commission on the Future of Transportation in the Commonwealth, December 2018. Pages 24-25.
[5] Ibid. Page 52.

- Charlemont Park & Ride (Route 2)
- Whately Park & Ride (Route 116/5/10)
- Greenfield Registry of Motor Vehicles/Visitors Center Park & Ride
- Sunderland Park & Ride (Route 47)

In 2018, FRCOG Staff evaluated the existing park and ride facilities in Franklin County to determine how well they are being utilized. In addition, FRCOG Staff conducted surveys of the park and ride facility users to better understand where they were coming from and how they were using the lots. The study shows that the use of the Whately and Sunderland park and ride lots continue to increase and that many users of the Sunderland lot are parking there in order to access public transit. The study recommends marketing of park and ride lots in the region, increased transit service to park and ride lots, and the installation of adequate bike racks and EV charging stations at all lots.

Ridesharing

There are several programs and internet-based resources that promote carpooling or "ridesharing" in Franklin County and the wider region. The major program to encourage ridesharing across Massachusetts was through MassRIDES, which is a MassDOT-run program. However, this program is ending in June of 2019. MassRIDES provided travel assistance by sharing information about transportation alternatives, including transit, biking, and walking. It helped employers establish vanpool or carpool options for employee commutes.

As mentioned in Chapter 9: Transit, ridesharing using private Transportation Network Companies (TNC), such as Uber or Lyft, has become very popular since the last RTP update in 2016. These TNC vehicles are readily available just to the south of Franklin County, particularly in the Hampshire County towns of Amherst and Northampton. However, their availability in Franklin County still remains limited. It is possible for users to receive rides to return to Franklin County (ex. Greenfield) from Hampshire County, but it is still difficult for users to book a ride to be picked up in Franklin County. The FRCOG will be investigating ways to increase the TNC presence in the region as a way to provide choices in transportation.

Shared Vehicle Program

Car sharing is defined as the joint access and ownership of a car. For individuals who do not need a car every day, it is a way to have a car when you really need one while relying on alternatives for most trips. Zipcar is a national vehicle sharing program that is available in Massachusetts. This service allows users to pay a fixed rate for the use of a vehicle that they are able to reserve when they need it. Members can reserve cars for time periods ranging from just hours to many days. These reservations include the cost of fuel, insurance, and reserved parking. Presently, there are six Zipcars located in Amherst and four Zipcars in downtown Northampton. There are no Zipcars sited in Franklin County.

Promote Walking and Bicycling

There has been a lot of support in Franklin County for increased walking and bicycling. Shifting to these transportation modes can result in a significant decrease in transportation-related GHG emissions, while promoting the health of residents. In Franklin County, several reports and studies have examined the safety and security of the pedestrian and bicyclist transportation network and efforts have sought to increase the quality and quantity of these facilities. These include the Franklin County Bikeway Plan and maps (the maps were updated most recently in 2017); a bicycle parking purchase program that resulted in the purchase and installation of 54 bike racks in 11 towns and 3 school districts; Walk Franklin County maps, updated in 2018, for all towns in Franklin County that depict one to two mile walking routes in town centers; and an annual bike breakfast at the JWO Transit Center during Baystate Bike Week. Chapter 10 summarizes in more detail the efforts to encourage bicycling and walking in the region.

Complete Streets

The Complete Streets Funding Program is a state funding program that provides technical assistance and construction funding to eligible municipalities for construction, reconstruction, and some rehabilitation and resurfacing projects that increase safety and accessibility for all travel modes including walking, biking, transit, and vehicles, and for people of all ages and abilities. Eligible municipalities must pass a Complete Streets Policy and develop a Prioritization Plan. Since the program began, FRCOG staff have assisted four towns with developing Prioritization Plans. The City of Greenfield also completed their own Plan. By completing a Prioritization Plan, towns become eligible to apply for funding to construct the improvements that are identified in the Plan. Towns are eligible to apply for up to $400,000 per year for construction funding through the Massachusetts Complete Streets Funding Program. Chapter 10 provides more details about Complete Streets efforts in the region.

Increase Use of the Public Transit System

In Franklin County, several reports and studies have examined the demand for public transit in the region. The following studies and reports have focused on transit service and include: *Alternative Transportation Plan, West County Transit Study, North County Transit Study*, *East County Transit Study*, a *Survey of Select Populations Regarding Transit Service,* and the

FRTA's *Regional Transit Plan*. The major strength of the transit system is that most of the major population centers within Franklin County are currently being served by public transit. Another beneficial aspect of the public transit system is the inclusion of bicycle racks on all of the buses. This coordination between various modes of transportation can help decrease dependence upon the single occupant motor vehicle and help mitigate GHG emissions. On the other hand, these studies and public outreach has shown that a weakness with the current status of transportation options within Franklin County is the limited service of public transit. This is primarily due to the high cost of providing transit service to such a rural population. See Chapter 9: Transit, for recommendations on how to improve the public transit system in Franklin County.

In addition to improving the transit system in Franklin County, over the next several decades, the transit fleet will need to transition to more efficient and cleaner vehicles for Massachusetts to meets its Global Warming Solutions Act (GWSA) 2050 goals. FRTA has already made strides in reducing GHG emissions of its transit fleet by purchasing a hybrid-electric bus. However, according to the Commission on the Future of Transportation, "Achieving the Commonwealth's 2050 GWSA mandate will require the near-complete transition of our vehicle fleet (cars, trucks, and buses) to electric vehicles or other zero-emission vehicle (ZEV) technology."[6] Due to higher up-front costs of purchasing battery electric buses compared to diesel buses, and the associated charging infrastructure, financial incentives will be needed to help regional transit agencies make this transition.

Passenger Rail in the Region

In 2014, passenger rail returned to Franklin County with the Amtrak "Vermonter" service stopping at the new rail station constructed at the John W. Olver Transit Center. This service, running on the recently improved tracks known historically as the Connecticut River Main Line, connects Washington D.C. and White River Junction, VT with stops including New York City and Springfield, Holyoke, Northampton, and Greenfield in Massachusetts. The service has two runs per day – one northbound and one southbound. In the Fall of 2019, a new pilot program will begin providing expanded service between Greenfield and New York City. The new service will provide four additional roundtrips per day during the work week, and one additional roundtrip per day on the holidays and weekends. Continuation of this expanded service beyond the pilot is dependent on ridership numbers. FRCOG staff are currently working with chambers of commerce and other regional partners on a marketing campaign to promote travel by rail in the region. See Chapter 7: Passenger Rail, for more information on passenger rail in the region.

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[6] *Choices for Stewardship: Recommendations to Meet the Transportation Future, Volume I.* Commission on the Future of Transportation in the Commonwealth, December 2018. Page 52.

Telecommunications

Telecommuting can help decrease GHG emissions by allowing workers to eliminate some daily commutes and work from home instead. It is anticipated that the number of employees telecommuting in Franklin County will continue to increase in the future. This is due in large part to the recent and pending expansion of the telecommunications infrastructure and high-speed internet services in the region. Chapter 4 includes more information on broadband internet expansion efforts in the region.

Improve Traffic Operations

Reduce Congestion and Travel Time

The time vehicles spend idling in traffic congestion is a direct contributor to GHG emissions. In order to prevent idling and decrease time spent in traffic, the efficiency of the transportation network needs to be examined. Constructing roundabouts at intersections are an effective way to decrease emissions. A roundabout has recently been constructed on Colrain Road in Greenfield at the entrance to Greenfield Community College and other intersections throughout the county are being evaluated for potential roundabout conversion.

Improve Communication and Notification

Technology can help improve the efficiency of the transportation network through driver communication and advanced notice of incidents to users of the transportation network. Improvements in communication may include better and more frequent use of variable message signs to notify drivers of upcoming construction schedules or delays. Another form of notification is the Massachusetts Travel Advisory System which is a free service provided for the Commonwealth in which a motorist can call 511 to see if a select number of major roadways are experiencing congestion. This service includes Interstate 91 and Route 2 in western Massachusetts. Motorists who are aware of an incident can take an alternate route, which will result in an avoidance of the congestion and a decreased travel time.

Transportation Resiliency

It is clear that the county needs to take an active role in reducing GHG emissions by promoting sustainable transportation and it also needs to plan for these potential changes and their impact on transportation infrastructure. The following strategies are aimed at preparing for the impacts of climate change on the future of the transportation system and the incorporation of climate resiliency into planning practices.

Nature-Based Solutions

Nature-based solutions (NBS) are actions that conserve, create, restore, and employ natural resources to enhance climate resilience. NBS use natural systems, mimic natural processes, or work in tandem with engineering to address natural hazards like flooding and erosion. The terms Green Infrastructure and Low Impact Development fall under the category of nature-based solutions.

Green infrastructure treats stormwater as a resource rather than a waste product, and can complement or replace traditional pipe and pond, or “gray” stormwater infrastructure, which utilizes extensive underground systems. In many communities, existing stormwater infrastructure is aging, expensive to maintain, and inadequate to handle the heavier rainfalls our region is experiencing due to climate change. This leads to localized flooding and negative impacts to roads, bridges, property, and water quality. At the same time, many local roads and other public facilities are in need of upgrades. Integrating green infrastructure into public projects now and in the future can result in cost savings and provide a host of other public benefits.

In 2017, FRCOG staff prepared a Green Infrastructure Guide for Public Works Projects to introduce different Green Infrastructure stormwater management techniques and how they might be applied in a transportation project. The guide includes information on design and maintenance, benefits, limitations, and cost of different techniques, as well as links to additional resources. Case studies from the region are highlighted within the guide.

MassDOT has a new Roads & Rivers training program designed for Highway Departments and other municipal staff to help them better understand river processes, aquatic habitat, and how transportation infrastructure affects and is affected by river stability. In addition, the program will provide information as to how to design, construct, and maintain transportation infrastructure that accommodates river channel stability. This is important for both paved and unpaved roads within Franklin County.

The FRCOG is currently working on a demonstration project in the Town of Buckland that will promote the use of green infrastructure stormwater management techniques and the integration of these techniques into various upcoming road projects identified by the town. In addition, the FRCOG is currently preparing a Sustainable Stormwater Management Plan for Franklin County, which will identify opportunities to incorporate sustainable, climate resilient stormwater management techniques, including green infrastructure, as part of planned and funded road projects. As part of this Plan, there will be three pilot studies to show how the techniques can be used to manage stormwater runoff from paved and unpaved roads.

A helpful resource to planners, town officials, and DPWs is the Resilient MA website.[7] This website provides the most up-to-date climate change science and decision support tools for Massachusetts. This includes information on the impacts of climate change on infrastructure and transportation.

High Risk Stream Crossings

In 2018, FRCOG staff completed a series of reports and maps for each town in the Deerfield River Watershed that identify high risk stream crossings in each community. The information in the reports and maps is from a pilot project completed by MassDOT and UMass Amherst that assessed the vulnerability of road-stream crossings to precipitation events. Roads, bridges, and culverts in the Deerfield River Watershed are particularly vulnerable to flooding, as Tropical Storm Irene demonstrated in 2011. Events like Tropical Storm Irene are projected to become more frequent due to climate change.

FRCOG planning staff compiled information on high risk culverts for each Franklin County town within the watershed to help municipal officials and public works staff prioritize bridge and culvert upgrades in their town. The reports also provide information on how to make road-stream upgrades more resilient to current and projected precipitation conditions, and lists potential funding sources for upgrading crossings. Upgrading and replacing culverts and bridges with structures that can withstand higher flows will save money over the long term, help protect critical infrastructure, and improve aquatic habitat in the watershed.

Culvert Assessments

In 2018, FRCOG staff attended training sessions to learn how to conduct culvert assessments for Franklin County towns that identify the structural condition of culverts and their vulnerability to flooding. Staff assessed culverts in Hawley and created a spreadsheet and interactive online map showing the location and condition of each culvert that was assessed. This work will provide the town with valuable information to prioritize culvert replacements and repairs before a failure occurs. FRCOG staff will be continuing these evaluations for other towns in Franklin County.

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[7] Resilient MA: Climate Change Clearinghouse for the Commonwealth, http://resilientma.org/

Evacuation Planning and Mapping

A safe transportation system protects users from hazards, including hazards resulting from climate-related stresses on the system. It is expected that more extreme weather events will lead to more precipitation and flooding. It is critical that infrastructure be planned and maintained to be able to withstand a higher frequency of these events. Tropical Storm Irene in August, 2011 provided crucial information on the vulnerability of the transportation network in the event of major flooding. This event flooded and washed out many roads and bridges in the region. Such events may be more severe in the future, so a revised examination of potential flooding areas and critical infrastructure should be performed for the whole region. The FRCOG has prepared updated flood maps with evacuation routes for each municipality in order to assess changes in flooded areas as a result of climate change and its effects on emergency preparedness.

Pavement Management

More prolonged heat spells and hotter days are expected with climate change, along with increased precipitation events. These effects will directly impact pavement condition. Warmer days will result in the softening of the pavement for longer periods of time and may lead to more rutting. Additional concerns regarding stormwater runoff should be examined when updating or redesigning the roadway network to accommodate the potential need for more drainage. The FRCOG conducts a Pavement Management Program for the region to monitor this critical component of the transportation infrastructure.

Improve Emergency Response Times via an Updated GIS Network

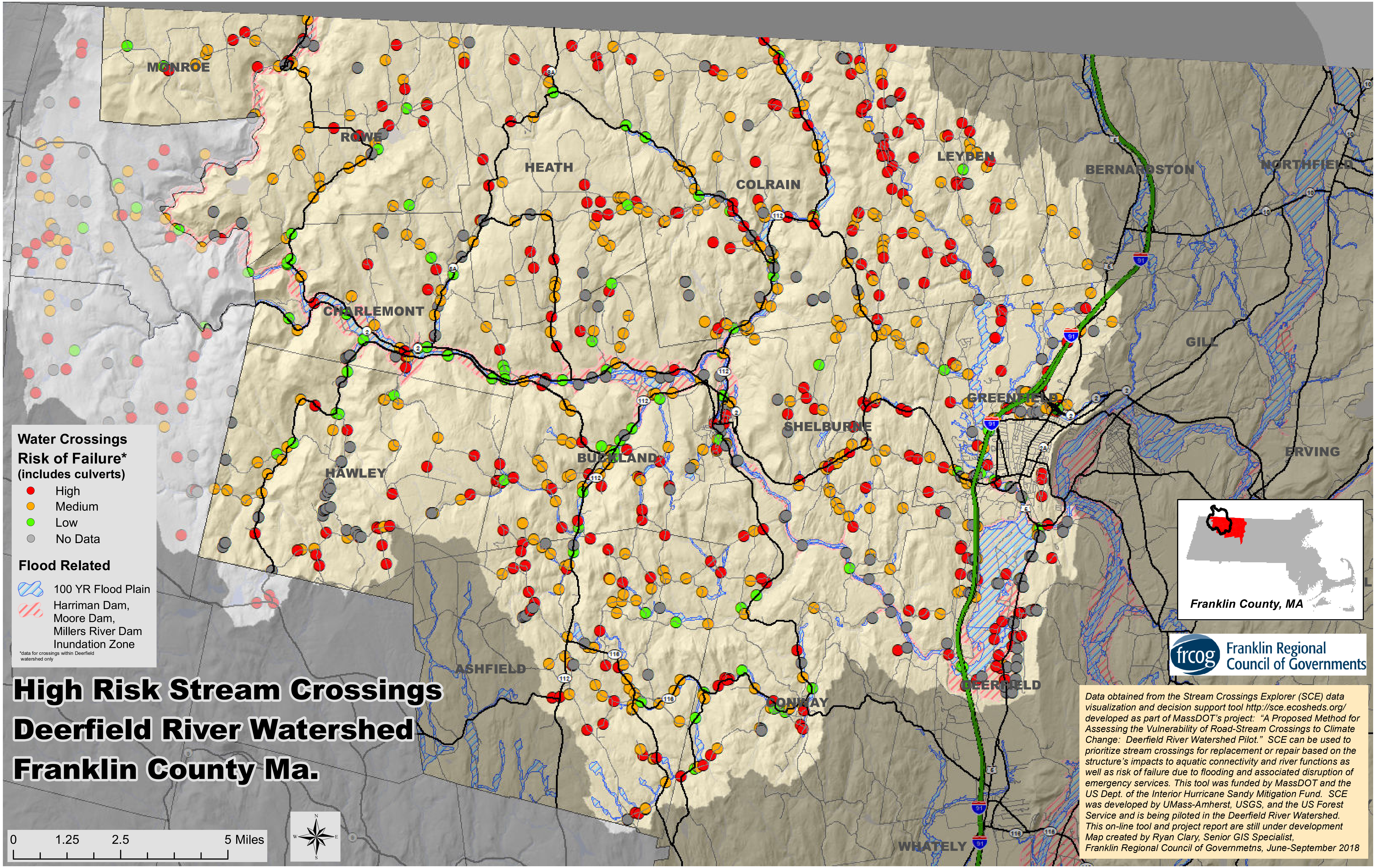
There are several tools which can aid in improving emergency response to an event. Emergency vehicle preemption is one proactive tool that can be used. Another aspect of emergency response is the accuracy of the information emergency responders use to reach an event. The FRCOG has identified changes to the Road Inventory File (RIF), which contains information used by emergency responders about the transportation network. The updated RIF will help improve emergency response times.

Recommendations for Resiliency and Climate Change

The transportation sector is the largest contributor to GHG emissions, which are a primary cause of climate change. There are many steps that have already been taken in the region to help mitigate GHG emissions. The region has also taken a proactive role in preparing for the impact of climate change on the regional transportation system.

- Continue to promote a reduction in GHG emissions in the region through the mitigation strategies described in the chapter.
- Continue to promote sustainable and alternative forms of transportation to the singly-occupied motor vehicle.
- Continue to support the electrification of transportation in the region through increasing public charging infrastructure and supporting the transition of municipal and transit fleets to electric vehicles.
- Assist municipalities with assessing transportation infrastructure most at risk to climate change and planning for upgrades and replacements that are designed to handle storm events and withstand the temperature extremes predicted for Franklin County.
- Integrate nature-based solutions into transportation projects whenever feasible to increase climate change resiliency. In particular, look at ways to manage stormwater runoff and impacts of climate change.
- Develop local and regional emergency action plans for natural hazard events related to climate change.
- Continue to implement a Pavement Management System for the county.

High Risk Stream Crossings Deerfield River Watershed Franklin County Ma.



Water Crossings Risk of Failure* **(includes culverts)**

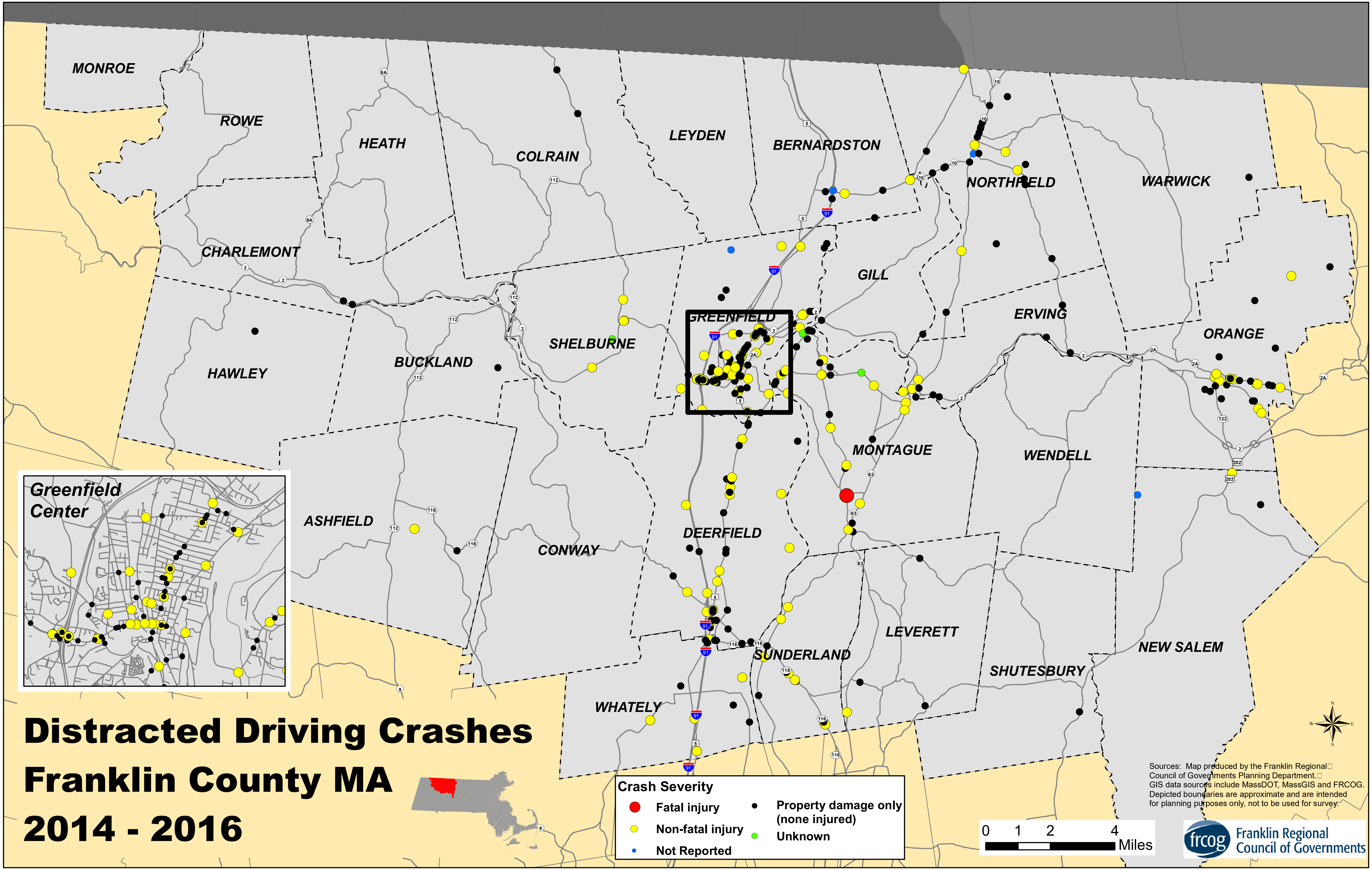
- 🔴 High
- 🟠 Medium
- 🟢 Low
- ● No Data

Flood Related

- ▨ 100 YR Flood Plain
- ▨ Harriman Dam, Moore Dam, Millers River Dam Inundation Zone

*data for crossings within Deerfield watershed only

Data obtained from the Stream Crossings Explorer (SCE) data visualization and decision support tool http://sce.ecosheds.org/ developed as part of MassDOT's project: "A Proposed Method for Assessing the Vulnerability of Road-Stream Crossings to Climate Change: Deerfield River Watershed Pilot." SCE can be used to prioritize stream crossings for replacement or repair based on the structure's impacts to aquatic connectivity and river functions as well as risk of failure due to flooding and associated disruption of emergency services. This tool was funded by MassDOT and the US Dept. of the Interior Hurricane Sandy Mitigation Fund. SCE was developed by UMass-Amherst, USGS, and the US Forest Service and is being piloted in the Deerfield River Watershed. This on-line tool and project report are still under development Map created by Ryan Clary, Senior GIS Specialist, Franklin Regional Council of Governmetns, June-September 2018



Distracted Driving Crashes Franklin County MA 2014 - 2016

Crash Severity

- 🔴 Fatal injury
- 🟡 Non-fatal injury
- 🔵 Not Reported
- ● Property damage only (none injured)
- 🟢 Unknown

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments

13

Safety & Security

2020 Regional Transportation Plan

13 Transportation Safety & Security

Transportation Safety

The safety of the transportation network can strongly impact travel patterns and behaviors as well as the health of a community. Many factors influence the safety of the transportation network including the road environment, road user, and vehicle factors. The overall goals for traffic safety is to minimize the probability of a vehicle being involved in a hazardous situation, or to diminish the consequences when a hazardous situation does occur. For Franklin County, this most often results in safety treatments on existing roadways that range from routine maintenance to complete intersection redesign. The most critical components of a safe, secure, and efficient transportation network are coordination and communication among emergency personnel, law enforcement officers, and the users of the transportation network.

Guiding Policies and Programs

In 2018, MassDOT completed an update to the *Massachusetts Strategic Highway Safety Plan (SHSP)* that examined transportation safety in the Commonwealth from a variety of perspectives. The 2018 SHSP focuses on a performance-based approach to achieving the goals of reducing traffic fatalities and hospitalizations. In the years since the first SHSP was developed in 2006, traffic fatalities in Massachusetts have dropped by 10% and serious injuries have dropped by 44%. The 2018 SHSP lays out five-year goals of reducing fatalities by 12% and serious injuries by 21%, with a long-range goal of zero deaths. The multi-disciplinary SHSP team outlined 14 emphasis areas and data-driven strategies to address the causes of crashes.

Franklin County's safety efforts generally fall within the Strategic emphasis areas of the SHSP, particularly regarding Intersections, Lane Departures, Pedestrians, and Bicycles. These themes examine crash and injury data to determine ways to reduce infrastructure-related and user-related issues. Much of the traffic safety related issues in Franklin County are the result of infrastructure issues or conflicts between motorists, and, to a lesser extent, conflicts between motorists and pedestrians/bicyclists.

As previously discussed in Chapter 3, the FAST Act federal transportation legislation requires that there be performance goals in seven topic areas, and states and MPOs are required to establish coordinated performance measures that track their progress in these goal areas with tangible targets. One of these goal areas is safety. The Franklin County Transportation Planning Organization (FCTPO) elected to adopt the safety performance targets set by

MassDOT. These target, described more fully in Chapter 3, set targets for reduction of fatalities and serious injuries for motorized and non-motorized traffic.

The Highway Safety Improvement Program (HSIP) is a federal transportation funding program under MAP-21 designed to achieve reductions in traffic fatalities and serious injuries on all public roads. For a highway safety improvement project to be eligible for HSIP funding, it must meet certain criteria:

- The candidate project must be consistent with the Massachusetts SHSP and correct or improve a hazardous road location or feature, or address a highway safety problem.
- The project location must originate from a comprehensive list of high crash locations. MassDOT prepares a statewide list of High Crash Locations, while regional planning agencies, such as the FRCOG, may also use their own edited data to more accurately rank locations within their region. The FRCOG report on the Most Hazardous Intersections in Franklin County is discussed later in this chapter.
- All HSIP project candidate locations must be evaluated with a Road Safety Audit. Road Safety Audits are also discussed in more detail later in this chapter.

Background

Traffic incidents have a direct impact on the safety of a community as well as the operations and security of the transportation network. Nationally, in 2016 alone, over 37,000 people lost their lives in traffic crashes.[1] This is the equivalent of 101 people dying each day, or one life lost every 15 minutes. Massachusetts continued to have the lowest fatality rate (0.58 per 100 million vehicle miles traveled) in the country in 2017.[2]

Table 13-1 presents a summary of traffic-related fatalities for each county in Massachusetts, from 2009 to 2013. Franklin County ranks among the lowest (after Nantucket and Dukes Counties) in the number of traffic-related fatalities per year. Over the five year period from 2013 to 2017, there were 36 traffic-related fatalities in Franklin County. Overall, this represents a 56% increase compared to the five year period from 2009-2013, in which 23 traffic-related fatalities occurred in Franklin County. Fatality rates across the state also increased, but not as significantly. The 1,786 traffic fatalities in Massachusetts from 2013-2017 represent a 1% increase over the 1,770 fatalities reported from 2009-2013. The recent increase in traffic related fatalities at both the state and county levels from 2013-2017 are a concerning trend that should continue to be monitored.

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[1] National Highway Traffic Safety Administration, Traffic Safety, October 2018.

[2] Insurance Institute for Highway Safety, Highway Loss Data Institute, 2017 data.

Table 13-1: Traffic Related Fatalities in Massachusetts by County, 2013-2017

County	Fatalities					Total	Avg. Year
	2013	2014	2015	2016	2017		
Barnstable County	18	16	12	18	14	78	15.6
Berkshire County	9	9	12	12	11	53	10.6
Bristol County	36	40	41	51	45	213	42.6
Dukes County	1	1	1	0	1	4	0.8
Essex County	34	27	23	33	36	153	30.6
Franklin County	7	5	11	5	8	36	7.2
Hampden County	34	34	30	40	35	173	34.6
Hampshire County	7	10	6	11	6	40	8
Middlesex County	41	45	48	64	34	232	46.4
Nantucket County	0	0	1	0	0	1	0.2
Norfolk County	28	41	38	31	33	171	34.2
Plymouth County	46	50	38	39	45	218	43.6
Suffolk County	23	26	30	34	26	139	27.8
Worcester County	67	50	53	49	56	275	55
Massachusetts	351	354	344	387	350	1786	357.2

Source: National Highway Traffic Safety Administration, U.S. Department of Transportation. Traffic Safety Facts for Massachusetts: 2013-2017; Total Fatalities (All Crashes).

Table 13-2 depicts the number of pedestrian and cyclists fatalities in Massachusetts and in Franklin County from 2013-2017. Statewide, the number of pedestrian fatalities was consistent year-to-year, varying from 74 to 79 pedestrian fatalities annually. Cyclists fatalities also remained relatively consistent statewide at an average of 350 per year, except for a spike of 387 cyclist fatalities in 2016. During this time period, there were zero pedestrian fatalities and 2 cyclist fatalities reported in Franklin County. There have, however, been 3 reported pedestrian fatalities and one cyclist fatality in Franklin County in 2018, while complete crash data for the state has not been released yet.

Table 13-2: Pedestrian and Cyclist Fatalities

Mode	Location	Fatalities					Total	Avg. Year
		2013	2014	2015	2016	2017		
Pedestrian	Massachusetts	79	74	79	79	74	385	77
	Franklin County	0	0	0	0	0	0	0
Cyclist	Massachusetts	6	8	12	10	11	47	9.4
	Franklin County	0	0	2	0	0	2	0.4

Source: National Highway Traffic Safety Administration, U.S. Department of Transportation. Traffic Safety Facts for Massachusetts: 2013-2017

Identification of the Most Hazardous Intersections in Franklin County

Approximately every three years, the FRCOG conducts an analysis of crash data to identify high crash locations in the County. All crashes resulting in estimated property damage in excess of $1,000, injuries, or fatalities must be reported to and recorded by police. Those involved in the crash, or the investigating police officer, must complete a standard report form and forward it to the Massachusetts Registry of Motor Vehicles (RMV). This data is used to create the Most Hazardous Intersection Report, which was most recently updated in 2016 and covers the crashes recorded between 2011 and 2013.

From 2011-2013, there were 3,304 crashes in Franklin County. The majority of these crashes occurred in Greenfield (1,305 crashes), Montague (352), and Deerfield (324). These Towns are the most densely developed and/or most trafficked areas of the County. To determine how hazardous each intersection is, a nationally recognized measure called “Equivalent Property Damage Only” (EPDO) was applied to each crash.

EPDO assigns points to each crash based on its severity. There are three crash severity levels: “property damage only” which is assigned one point; “injury” which is assigned five points; and “fatality” which is assigned ten points. Only one category is assigned to each crash, reflecting the most serious crash level. For further analysis, the EPDO rate per Million Entering Vehicles (MEV_{EPDO}) is calculated to weigh the severity of crashes at an intersection by the volume of traffic entering the intersection. In this way, the MEV_{EPDO} reflects both the severity of crashes as well as the rate of exposure to crashes.

Using the results of the MEV_{EPDO} calculation, the top fifty most hazardous intersections were ranked and the results are contained in Table 13-3 and shown on a map at the end of this chapter. The map shows that the vast majority of the identified hazardous intersections are located on the most heavily traveled corridors in the County. The Town with the largest number of hazardous intersections on the list was Greenfield (32 intersections), followed by

Montague (5 intersections). Of the 50 most hazardous intersections, 21 appeared on the previous list of the top 50 most hazardous intersections in Franklin County, which was based on from crash data from 2009 through 2012.

Table 13-3 also indicates which locations have been the subject of a Road Safety Audit and also those locations where safety improvements have been implemented or programmed for implementation since 2011. Road Safety Audits are discussed in more detail in the next section of this chapter.

It is important to recognize that Franklin County is very rural and the majority of its roadways carry lower traffic volumes than the rest of the state. Therefore, they experience a lower probability of crashes. Inclusion on the most hazardous intersection list for Franklin County does not necessarily mean that an intersection has a severe safety problem. To see how these intersections on the Franklin Count list compare to hazardous intersections statewide, they are compared to ratings produced by MassDOT, using the measure of crash rate per million entering vehicles (MEV_{CRASH}).

The MEV_{CRASH} rate is used by MassDOT to develop average rates for both signalized and unsignalized intersections on a regional and statewide level. These average MEV_{CRASH} rates are considered by MassDOT as a threshold for determining if a particular intersection warrants a more detailed safety evaluation. A total of 47 of the identified 50 intersections have MEV_{CRASH} rates that exceed the MassDOT average crash rates of 0.77 for signalized intersections and 0.58 for unsignalized intersections. This includes all of the top 10 most hazardous intersections.

There are 26 signalized intersections in Franklin County, 9 of which appear in the top 50 most hazardous intersection list. Of these 9 signalized intersections, 6 have a MEV_{CRASH} rate higher than the MassDOT District average.

Table 13-3: Top 50 Most Hazardous Intersections in Franklin County, 2011-2013

Rank	Town	Intersection	Control Type	Number of Crashes	$\text{MEV}_{\text{Crash}}$	EPDO	MEV_{EPDO}	Road Safety Audit	Safety Improve-ments
1	Whately	Route 5/10 (State Road) / Christian Lane	STOP	11	1.89	43	7.38	yes	yes
2	Leverett / Shutesbury	Leverett Road / Shutesbury Road (at Town Line)	NONE	5	2.08	17	7.06		
3	Greenfield	Hope Street / Prospect Street	STOP	6	2.74	18	8.22		
4	Greenfield	I-91/Route 2/Route 2A (Rotary)	YIELD	79	2.29	163	4.73		yes
5	Greenfield	Allen Street / Wells Street	STOP	14	1.91	34	4.64	yes	yes
6	Montague	Canal Street / Third Street	STOP	6	1.37	19	4.34		
7	Greenfield	Turners Falls Road / Loomis Road	YIELD	15	2.08	31	4.29	yes	
8	Northfield	Route 10/63 (Main Street / Hinsdale Road / Wanamaker Road)	STOP	8	1.40	24	4.21		
9	Shutesbury	Route 202 (Daniel Shays Highway) / Prescott Road	STOP	9	2.05	21	4.79		
10	Montague	Route 63 (Federal Street) / (Route 47) North Leverett Road	STOP	11	1.78	23	3.72		
11	Greenfield	Chapman Street / Pierce Street	STOP	5	1.07	17	3.65		
12	Greenfield	Federal Street / Church Street / Pleasant Street	STOP	26	1.63	58	3.63		
13	Montague	Route 47 (North Leverett Road / Sunderland Road) / Main Street	STOP	4	0.83	17	3.53		
14	Greenfield	Montague City Road / Mountain Road	STOP	13	1.11	41	3.50		
15	Montague	L Street / Third Street Alley	STOP	10	1.27	26	3.30		
16	Greenfield	Conway Street / Allen Street	SIGNAL	6	0.88	22	3.24		yes
17	Greenfield	Route 2 / Colrain Road / Irving Station / Big Y (overlap)	SIGNAL +STOP	45	1.77	81	3.19	yes	yes
18	Greenfield	Conway Street /Devens Street	STOP	5	1.23	13	3.19	yes	

Table 13-3: Top 50 Most Hazardous Intersections in Franklin County, 2011-2013

Rank	Town	Intersection	Control Type	Number of Crashes	MEV$_{Crash}$	EPDO	MEV$_{EPDO}$	Road Safety Audit	Safety Improve-ments
19	Charlemont	Route 2 / East Oxbow Road	STOP	3	0.61	15	3.04		
20	Greenfield	Route 2A (Mohawk Trail) / River Street / Shelburne Road East	STOP	31	1.58	59	3.01	yes	yes
21	Greenfield	Deerfield Street / Cheapside Street	STOP	13	0.92	41	2.89	yes	yes
22	Greenfield	Federal Street / Silver Street	SIGNAL	27	1.15	67	2.85		yes
23	Greenfield	Conway Street / Hayes Avenue	STOP	5	2.74	9	2.74		
24	Greenfield	Federal Street / Forest Avenue / Hastings Street / McDonalds (overlap)	STOP	16	1.08	40	2.69		
25	Greenfield	High Street / Maple Street	STOP	13	1.38	25	2.65		
26	Greenfield	Colrain Road/ Colrain Street	STOP*	10	1.00	26	2.61		yes
27	Greenfield	Chapman St / Allen St	STOP	9	1.37	17	2.59		
27	Montague	Avenue A / Third Street	SIGNAL	9	1.37	17	2.59		
29	Greenfield	Elm Street / Allen Street	STOP	3	0.51	15	2.54		
30	Orange	Route 202 / Route 2 EB On-ramp	STOP/ YIELD	6	0.84	18	2.53		
31	Greenfield	I-91 SB / Exit 26 Off-Ramp	YIELD	15	1.21	31	2.49		
32	Greenfield	Cheapside Street / Montague City Road / RR Bridge Underpass	NONE	17	2.49	17	2.49		
33	Orange	Route 202 / Rt. 2 WB On-ramp / Rt. 2 WB Off-ramp	STOP/ YIELD	8	1.22	16	2.44		
34	Gill	Route 2 / Setback Lane	STOP	3	0.33	21	2.28		
35	Greenfield	Bernardston Road / Cherry Rum Plaza / Route 2 Off-ramp	STOP/ YIELD	12	0.73	36	2.19		
36	Deerfield	Route 5/10 / North Main Street / Mill Village Road	STOP	10	0.84	26	2.18	yes	

Table 13-3: Top 50 Most Hazardous Intersections in Franklin County, 2011-2013

Rank	Town	Intersection	Control Type	Number of Crashes	MEV_{Crash}	EPDO	MEV_{EPDO}	Road Safety Audit	Safety Improve-ments
37	Deerfield	Route 5/10 / Route 116 North (Conway Road)	SIGNAL	20	0.97	44	2.14		
38	Greenfield	River Street / Laurel Street	STOP	7	1.00	15	2.14		
39	Greenfield	I-91 NB / Exit 26 Off-ramp	YIELD	20	1.31	32	2.10		
40	Greenfield	Federal Street / Beacon Street / Pierce Street	SIGNAL	13	0.69	37	1.96		
41	Greenfield	Colrain Rd / Shelburne Rd / Plaza + Motel driveways	STOP	9	1.03	17	1.94		
42	Greenfield	Colrain Street / Elm Street / Solon Street	SIGNAL	5	0.68	13	1.77		yes
43	Greenfield	Federal Street / Maple Street / Garfield Street	STOP	8	0.58	24	1.75		
44	Greenfield	Federal Street / Wendy's / CVS	STOP	13	0.88	25	1.69		
45	Greenfield	Main Street / Federal Street / Bank Row	SIGNAL	23	0.90	43	1.68		yes
46	Deerfield	Route 5/10 / Memorial Street / Pine Nook Road	STOP	3	0.33	15	1.65		
47	Northfield	Route 10 / Fort Sumner Turner Road / Lamplighter Way	STOP	7	0.76	15	1.63		
48	Greenfield	High Street / Hastings Street	STOP	5	0.48	17	1.62		
49	Bernardston	Route 10 (Northfield Road) / Route 142 (Mount Hermon Station Road)	STOP	5	0.44	18	1.59		
50	Greenfield	French King Highway / Loomis Road	SIGNAL	17	0.91	29	1.56		

Road Safety Audits

The Road Safety Audit (RSA) process is a formal safety examination of an existing or future roadway or intersection by an independent, multidisciplinary team to identify potential safety issues and opportunities for safety improvements. Identified safety improvements can range from short-term, low-cost options to large scale redesign improvements. However, the majority of the improvements are focused on short and mid-term, low to mid-cost safety improvements that can elicit immediate results. The RSA process involves an audit team that typically includes representatives from State and Local agencies, such as State Transportation Officials and local Public Safety Officers.

The FRCOG, in conjunction with MassDOT and local municipalities, has performed many RSAs in Franklin County. To date, twenty-one RSAs have been conducted in the communities of Deerfield, Erving, Greenfield, Shelburne, Sunderland, and Whately. The locations of these RSAs are:

- Interstate 91 at Exit 25, Deerfield
- Main Road at Jacksonville Road (Route 112), Colrain
- Route 5/10 (Greenfield Road) at Elm Street, Deerfield
- Route 5/10 (Greenfield Road) at North Main Street, Deerfield
- Route 5/10 (Greenfield Road) at Route 116 (Conway Road), Deerfield
- Route 116 (Sunderland Road) at Sugarloaf Street, Deerfield
- Route 2 (Mohawk Trail) at Route 2A (West Orange Road), Erving
- Cheapside Street at Hope Street, Greenfield
- College Drive at Colrain Road, Greenfield
- Conway Street at Devens Street, Greenfield
- Conway Street at Grove Street, Greenfield
- Conway Street Corridor (between Devens Street and Grove Street), Greenfield
- Route 2 (Mohawk Trail) / Colrain Road / Big Y Driveway, Greenfield
- Route 116 (Bridge Street/Amherst Road) at Route 47 (North Main Street / South Main Street), Sunderland
- Route 5/10 at Cheapside Street, Greenfield
- Route 2A (Mohawk Trail) at River Street / Shelburne Road, Greenfield
- Turners Falls Road at Loomis Road, Greenfield
- Wells Street at Allen Street, Greenfield
- Route 2 (Mohawk Trail) at Colrain Shelburne Road, Shelburne
- Interstate 91 at Exit 24, Whately

- Route 5/10 at Christian Lane, Whately

Audit team members from the FRCOG, MassDOT, FHWA, and municipalities joined the RSA team leader, hired by MassDOT. For each location, the RSA team performed a review of background information such as traffic volumes, crash information, and operation concerns from local officials. The team then visited each of the locations to analyze these issues. Each RSA concluded with the audit team developing an comprehensive list of challenges, issues, and potential solutions for the study area. Final recommendations were provided to audit team members by the consultant, upon completion of the report. These recommendations are categorized by "safety payoff" (high, medium, or low), time frame for implementation (short-term, mid-term, or long-term), and cost (high medium or low).

Vision Zero

In recent years, a movement has grown that aims to achieve a highway system with no fatalities or serious road traffic injuries; this movement is known as Vision Zero. Vision Zero urges communities and policy makers to embrace new methodologies to eliminate roadway injuries and death. The current Massachusetts Strategic Highway Safety Plan (SHSP) adopts the Vision Zero principle with its long-range goal of zero traffic fatalities.

Distracted driving is a particular focus area of Vision Zero, as it is a problem that may be solved by technology, including the driver assist features of new cars on the road today, and the driverless, autonomous vehicles of the future. In 2019, the FRCOG completed a report on distracted driving crashes in Franklin County. The report found that distracted driving was a factor in 105 motor vehicle crashes in the County. It identified the most common sources of driver distractions and made recommendations to support messaging about the dangers of distracted driving and to support infrastructure improvements that will accommodate the adoption of driver-assistance technology, such as lane-assistance and adaptive cruise control, and other autonomous vehicle systems, known as self-driving cars.

Safety Improvement Projects

The following section describes safety projects that are currently planned and/or designed for the region.

Intersection Improvements at Main Road, Jacksonville Road (Route 112) and Greenfield Road in Colrain

The intersection of Main Road, Jacksonville Road (Route 112) and Greenfield Road in Colrain is a three-way unsignalized intersection with a triangular island in the middle and stop control for the eastbound approach on Main Road (Rte. 112). Twelve crashes were reported at this intersection between 2010 and 2017, including one fatality. An RSA was conducted here in 2017, which revealed that roadway geometry and vehicle speeds are significant contributors to the safety issues. The project is currently under design to reconstruct intersection, improve traffic flow and sight distance, and provide pedestrian accommodation. The project is programmed to be advertised for construction in 2020.

Roadway Reconstruction and Village Center Traffic Calming on Route 2, Charlemont

This project includes sidewalk reconstruction, crosswalk enhancement and gateway traffic calming treatments. It is scheduled to be advertised in 2019, with a current cost estimate of $6.9 million.

Intersection Improvements at Route 2 and Colrain Road / Route 2 at Big Y Entrance, Greenfield

Route 2 at Colrain Road in Greenfield is a four-way signalized intersection just west of the Greenfield Rotary, which is the interchange of Interstate 91 and Route 2/Route 2A, the most heavily-traveled intersection in Franklin County. Immediately to the west of the signalized intersection is the intersection of Route 2 at the Big Y Entrance, the main entrance to a busy supermarket and shopping plaza. These two intersections together were #17 on the most recent list of the Most Hazardous Intersections in Franklin County, and was identified as a MassDOT HSIP Cluster for 2013-2015. An RSA, conducted at this location in 2014, identified left-turns from Big Y entrance onto Route 2 eastbound as particularly hazardous. In addition, multiple rear-end crashes were identified at the signalized intersection of Route 2 at Colrain Road. A MassDOT project was initiated to reconstruct the signal at Colrain Road and construct a new traffic signal at the Big Y Entrance. This project is programmed to be advertised for construction in 2022.

Route 2 East Safety Improvements

The Route 2 Task Force, formed in 1994, worked with MassDOT and a transportation consultant to identify safety improvements that could be constructed within the existing right-of-way on Route 2 between Greenfield and Phillipston. They were: Athol/Phillipston, Orange, Erving Paper Mill Corner, Erving Center, Farley, Ervingside and Gill/Greenfield. Since 1996, approximately $168 million of safety improvements have been successfully implemented. The following is a summary of proposed projects to address the outstanding recommendations of the Task Force.

Erving Center

Safety improvements in Erving Center focus on traffic calming and safer turning movements. The improvements include improved roadway alignment, sight distance, pedestrian accommodations, and traffic calming measures. Currently under design, the project is estimated to cost approximately $16 million.

Relocated portion of Route 2 in Erving that was completed as part of Route 2 East Safety Improvements

Farley

Safety improvements in the Farley area of Erving focus on providing safer turning movements by redesigning several intersections with improved sight distance and pedestrian accommodations. The project is currently under design and has a construction cost estimate of approximately $6.7 million.

Gill-Greenfield

Safety improvements in the Gill-Greenfield area will incorporate a protected turn lane (westbound) into Barton Cove, and will provide safer turning movements for the Route 2 businesses near the Avenue A/Route 2 intersection. A MassDOT project was initiated with a cost estimate of approximately $2.5 million.

Transportation Security

Transportation security is one of the factors considered by Metropolitan Planning Organizations such as the FRCOG during their planning processes. Franklin County has a robust and coordinated regional emergency preparedness effort that augments transportation safety and security concerns. This effort, combined with exercises, trainings and real-world emergency response and recovery efforts in the region, contribute to planning efforts that include safety and security as cornerstones. This section provides a summary of the transportation security activities currently occurring within the Franklin County region.

Emergency Planning Activities

Emergency planning activities in Franklin County have focused on general emergency preparedness and training, and on the coordination between Towns and agencies in response to a disaster. The emphasis is on training, improving emergency communications infrastructure, and evacuation planning. Two major committees working on emergency planning in Franklin County are the Franklin County Regional Emergency Planning Committee (REPC) and the Western Regional Homeland Security Advisory Council (WRHSAC).

Franklin County Regional Emergency Planning Committee

In 2000, under the leadership and administrative support of the FRCOG, all 26 Franklin County Towns opted into the REPC and elected an “all hazards” approach to emergency planning. This approach addresses planning for hazmat emergencies as well as other natural, technological, and man-made events that call for a similar inter-town, inter-disciplinary response. Since that time, the REPC has developed and maintained a regional Hazardous Materials Emergency Plan (HMEP), which is a planning and guidance document that provides resources and recommendations for the development of individual community response plans. The HMEP is updated on a yearly basis. The REPC provides Hazmat trainings and exercises to emergency responders and local community leaders throughout Franklin County to meet local and state training requirements.

In September 2016, the REPC planned and executed a hazardous materials exercise in Whately. This was a joint effort between the Franklin County and Hampshire County REPCs. This exercise brought together 50 responders from fire, police, EMS, communications, and emergency operation center personnel to test their skills and coordination when responding to a chlorine spill.

In September of 2017, the REPC planned and conducted a Hazardous Materials Operations and Safety Course. This 8-hour course included the proper procedures for identifying hazardous materials by placard or pipeline marker; using proper terminology to discuss chemical and physical properties of hazardous substances; identifying different vulnerabilities in containers; predicting dispersion patterns of released materials; and instructing how to properly use self-contained breathing apparatus, among other topics. This advanced course allowed the individuals to bring their knowledge back to their departments to assist in making hazmat incidents safer for the whole community and to train and advise those that could not attend.

In 2019 the REPC will be conducting a hazard and vulnerability threat assessment of hazardous materials in Franklin County. The result will be an updated Hazard Assessment section of the current Franklin County Hazardous Emergency Plan. This update will include an assessment of the routes hazardous materials travel to meet their destination.

Western Region Homeland Security Advisory Council

The Western Region Homeland Security Advisory Council (WRHSAC) was created in 2004 with the charge of improving the region's ability to respond to large-scale emergency incidents or disasters. The WRHSAC covers the 101 cities and towns in Franklin, Berkshire, Hampden, and Hampshire Counties, and is one of five similar councils in Massachusetts. Members are appointed by the Massachusetts Executive Office of Public Safety (EOPS). WRHSAC's voting members represent regional transit, fire services, law enforcement, emergency medical services, public works, corrections, public health, hospitals, emergency management, and public safety communications.

The WRHSAC works with the regional planning agencies in each region, and a variety of state agencies. The seven primary goals are to:

- Improve interoperability and information sharing;
- Implement mass care and sheltering;
- Acheive emergency response, recovery planning and preparedness;
- Achieve chemical, biological, radiological, nuclear and explosive preparedness;
- Plan regionally to protect critical infrastructure and key assets;
- Train first responders and local officials; and
- Conduct multi-jurisdictional exercises for large-scale incident management.

The FRCOG and the other regional planning agencies that are part of the WRHSAC (the Berkshire Regional Planning Commission and the Pioneer Valley Planning Commission) collaboratively built tools to strengthen the region's response to large-scale natural and man-made disasters. These tools include:

- A regional mutual aid agreement to facilitate the sharing of resources among Towns;
- Information on priority critical infrastructure;
- Evacuation planning for special needs populations; and
- A resource guide that highlights caches of emergency supplies throughout the region that are available to communities to borrow as aids to response and recovery.

Using WRHSAC grant funds, the FRCOG owns and maintains the Franklin County Emergency Communication System (FCECS). The FCECS is a 13-tower, 450 MHz radio communications network that provides emergency communication services to first responders in Franklin County towns. The FCECS infrastructure is now 12 years old and well past its expected life of 7-10 years. Replacement parts are no longer manufactured or vendor-supported, and used parts are increasingly unavailable. The current focus of the FCECS Oversight Committee and the FRCOG efforts is to maintain the existing system while also determining how to replace the system, either by rebuilding the 450 MHz network or migrating to the Commonwealth's 800 MHz emergency communication system. This includes assessing the ability and cost of keeping the system operational, and working with the system's Oversight Committee and the FRCOG Finance Committee to plan for needed expenditures. The Oversight Committee and staff are considering the benefits and obstacles of the system replacement options and meeting with state and federal officials and legislators to assess the best path forward.

Large-Scale Evacuations

Consideration of the transportation network in evacuation planning is essential and due to its rural nature, there are several challenges for large-scale evacuations in Franklin County. A map at the end of this chapter shows the main evacuation routes for the region. These routes have been identified by local communities through their emergency planning processes and the creation of their Comprehensive Emergency Management Plans (CEMPs) that all municipalities are required to develop, per FEMA.

The FRCOG worked with the Berkshire Regional Planning Commission (BRPC), Pioneer Valley Planning Commission (PVPC), and the University of Massachusetts Transportation Center (UMTC) to prepare preliminary evacuation plans for Western Massachusetts. The project developed evacuation maps that take into account conditions that would initiate evacuation flow out of the area, and conditions that might initiate evacuation flow into the region. The maps have been distributed to each municipality in the four counties of Western Massachusetts.

Multi- Hazard Mitigation Planning

Since 2005, the FRCOG has worked with the Franklin County Towns to create and update local multi-hazard mitigation plans. All 26 Franklin County Towns now have FEMA-approved plans that make them eligible for state and federal grants to fund pre- and post-disaster mitigation projects to reduce the impact of future natural and man-made disasters. Local adoption of these plans followed an extensive public participation process that included the opportunity for key stakeholders to provide input. These are multi-year plans that require updates every five years. Seventeen Franklin County Towns are currently in the process of updating their hazard mitigation plans.

The updates of the multi-hazard mitigation plans will include:

- identifying the most important hazards that have a high probability of impacting each community based on historical data from national, state, and local sources;

- conducting a risk assessment to identify infrastructure and population groups at the highest risk for being damaged or injured by hazards;
- inventorying and assessing current Town hazard mitigation policies, programs, and regulations; and
- identifying and prioritizing mitigation actions in a five-year Action Plan to prevent future damage to property and loss of life.

In addition, the plans review recent development trends and include updated maps showing critical facilities and infrastructure in each Town, such as schools, hospitals, shelters, police and fire stations, public water supplies, communication towers, dams, culverts, and areas of localized flooding (often from beaver dams). Other sections of the plans provide current information on the National Flood Insurance Program (NFIP) and potential funding sources for hazard mitigation plan implementation. Finally, the plans provide guidelines for monitoring, evaluating and updating the plan; recommendations for incorporating the plan into existing planning mechanisms; and suggestions for providing continued public involvement throughout the five-year implementation process.

Floodplains and River Corridors

Franklin County's topography has resulted in many critical facilities that are located within or very near the 100-year floodplains. A floodplain is defined as land that is covered by water when river flows are high and overtops the river banks. As discussed in the previous chapter, climate change is creating more frequent and severe flood events, which means that the typical 100-year floodplain is changing and expanding, potentially putting additional critical infrastructure and facilities at risk.

In addition to the floodplain, a river corridor is the land adjacent to a river that provides the physical space that the river needs to move and erode and deposit sediment over time. River corridors and floodplains can overlap, but corridors often extend beyond the floodplain. Much of the development in Franklin County has historically been, and continues to occur, within and adjacent to the County's floodplains and river corridors. Not only does this place the development and infrastructure at risk, but it can also exacerbate flooding and erosion problems. The FRCOG has mapped several river corridors in Franklin County to better understand its location, what currently exists within it, and how to protect those resources while protecting the health of the river itself.[3] With this knowledge, development can be steered away from the river corridors, and transportation infrastructure, like culverts and stream crossings, can be properly upgraded or replaced to accommodate the natural river processes.

Recommendations for Transportation Safety

- Support design and construction of Route 2 Safety improvements in Erving Center, Farley, and Gill/Greenfield.
- Continue to be involved in the process related to the Strategic Highway Safety Plan.
- Continue to support policies and projects that will reduce traffic fatalities and serious injuries to achieve the safety performance targets set forth by MassDOT.
- Continue to monitor high crash locations and work with MassDOT and Towns to develop recommendations to improve safety.
- Coordinate Road Safety Audits at the highest-rated locations on the list of Most Hazardous Intersections in Franklin County.
- Investigate recent traffic fatalities in Franklin County for trends and opportunities for safety improvements.
- Investigate conditions of serious injury bicycle and pedestrian crashes, and make recommendations for infrastructure improvements.
- Assist municipalities with assessing transportation infrastructure most at risk, and plan for upgrades and replacements that are designed to handle storm events and accommodate the natural processes of the river corridor.

Recommendations for Transportation Security

- Continue working with the Franklin County Regional Emergency Planning Committee (REPC) and the Western Region Homeland Security Advisory Committee (WRHSAC) to expand the region's preparedness to manage emergency incidents, including those that impact the regional transportation network.
- Improve operability of the radio communications system with assistance from the REPC and WRHSAC.
- Assist employers and critical facilities with the creation of plans for continued operations and employee transportation in the event of an emergency in the region.

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[3] The North and South River HUC 12 Subwatershed river corridors have been mapped and the Green River Subwatershed corridor is currently being mapped.

- Support regional and local planning efforts to mitigate natural hazards; and coordinate and integrate natural hazard mitigation activities as appropriate with emergency planning and operations.

Franklin County Massachusetts

Critical Infrastructure & Evacuation Routes

Infrastructure

- P Police Department
- ✚ Fire Department
- H Hospital

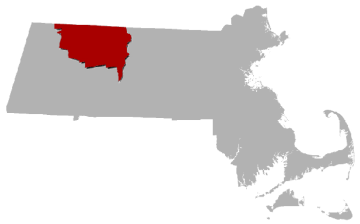
Shelters

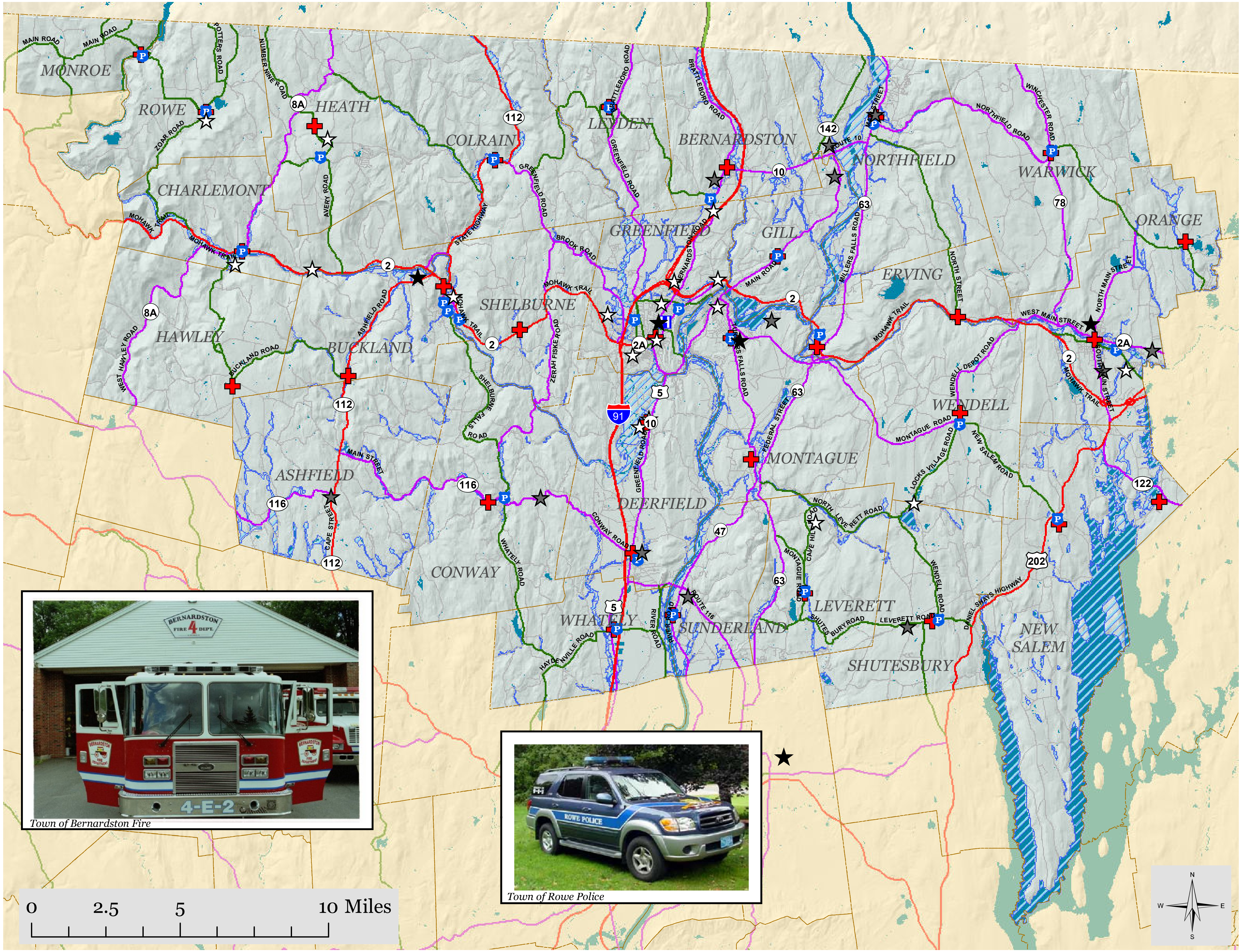
- ★ Primary
- ★ Secondary
- ☆ Tertiary

▨ 100 Year Flood Plain

Evacuation Routes

- — Main Route
- — Secondary Route
- — Tertiary Route





Town of Bernardston Fire

Town of Rowe Police

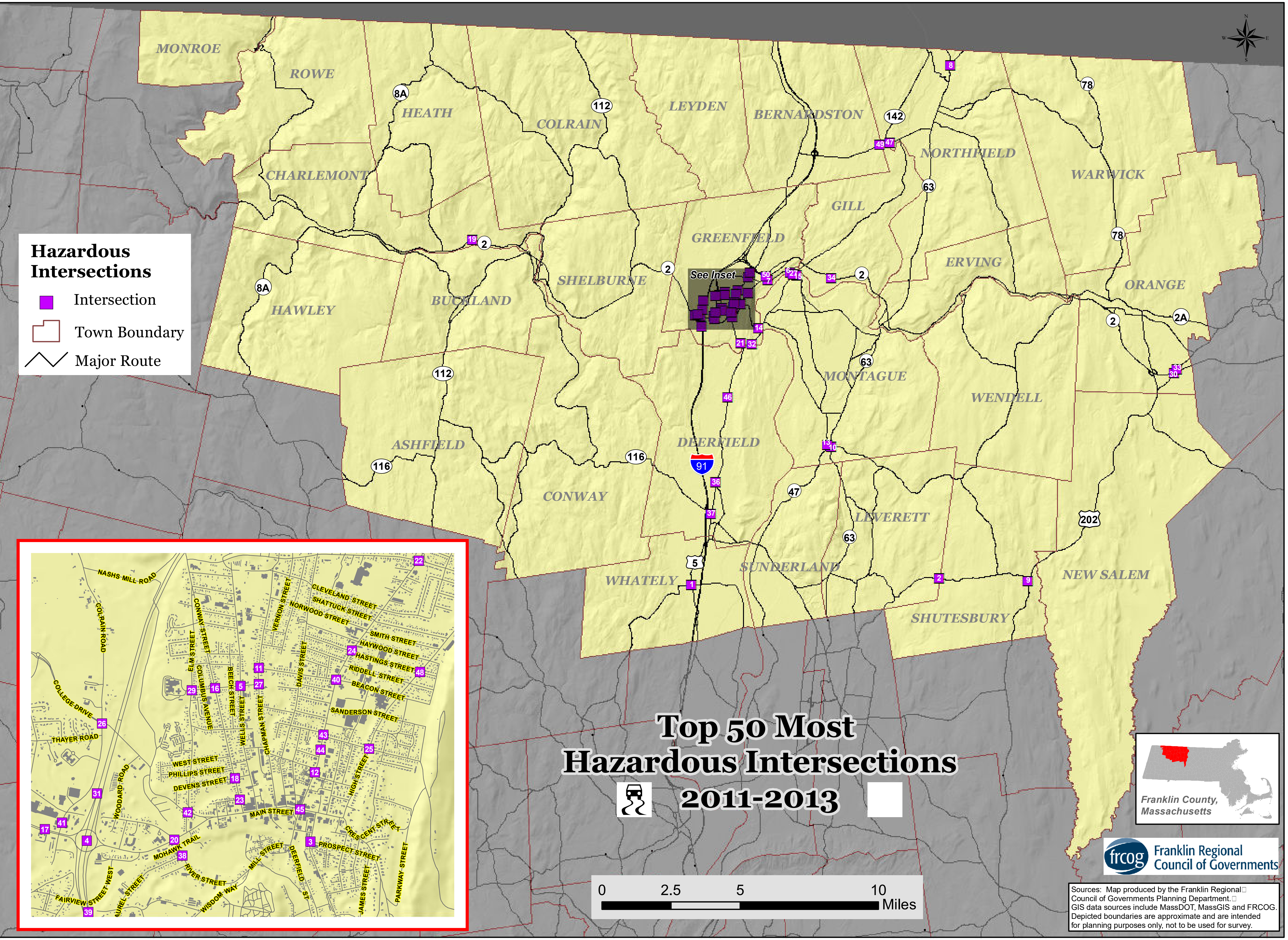
Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

Franklin Regional Council of Governments

Top 50 Most Hazardous Intersections 2011-2013

Hazardous Intersection Locations & Rank

Rank	Town	Intersection
1	Whately	Route 5/10 (State Road) / Christian Lane
2	Leverett / Shutesbury	Leverett Road / Shutesbury Road (at Town Line)
3	Greenfield	Hope Street / Prospect Street
4	Greenfield	I-91/Route 2/Route 2A (Rotary)
5	Greenfield	Allen Street / Wells Street
6	Montague	Canal Street / Third Street
7	Greenfield	Turners Falls Road / Loomis Road
8	Northfield	Route 10/63 (Main Street / Hinsdale Road / Wanamaker Road)
9	Shutesbury	Route 202 (Dan'l Shays Highway) / Prescott Road
10	Montague	Route 63 (Federal Street) / (Route 47) North Leverett Road
11	Greenfield	Chapman Street / Pierce Street
12	Greenfield	Federal Street / Church Street / Pleasant Street
13	Montague	Route 47 (North Leverett Road / Sunderland Road) / Main Street
14	Greenfield	Montague City Road / Mountain Road
15	Montague	L Street / Third Street Alley
16	Greenfield	Conway Street / Allen Street
17	Greenfield	Route 2 / Colrain Road / Irving Station / Big Y (overlap)
18	Greenfield	Conway St./Devens St.
19	Charlemont	Route 2 / East Oxbow Road
20	Greenfield	Route 2A (Mohawk Trail) / River Street / Shelburne Road East
21	Greenfield	Deerfield Street / Cheapside Street
22	Greenfield	Federal Street / Silver Street
23	Greenfield	Conway Street / Hayes Avenue
24	Greenfield	Federal Street / Forest Avenue / Hastings Street / McDonalds (overlap)
25	Greenfield	High Street / Maple Street
26	Greenfield	Colrain Road/ Colrain Street
27	Greenfield	Chapman St / Allen St
27	Montague	Avenue A / Third Street
29	Greenfield	Elm Street / Allen Street
30	Orange	Route 202 / Route 2 EB On-ramp
31	Greenfield	I-91 SB / Exit 26 Off-Ramp
32	Greenfield	Cheapside St / Montague City Rd / RR Bridge Underpass
33	Orange	Route 202 / Rt. 2 WB On-ramp / Rt. 2 WB Off-ramp
34	Gill	Route 2 / Setback Lane
35	Greenfield	Bernardston Road / Cherry Rum Plaza / Route 2 Off-ramp
36	Deerfield	Route 5/10 / North Main Street / Mill Village Road
37	Deerfield	Route 5/10 / Route 116 North (Conway Road)
38	Greenfield	River Street / Laurel Street
39	Greenfield	I-91 NB / Exit 26 Off-ramp
40	Greenfield	Federal Street / Beacon Street / Pierce Street
41	Greenfield	Colrain Rd / Shelburne Rd / Plaza + Motel driveways
42	Greenfield	Colrain Street / Elm Street / Solon Street
43	Greenfield	Federal Street / Maple Street / Garfield Street
44	Greenfield	Federal Street / Wendy's / CVS
45	Greenfield	Main Street / Federal Street / Bank Row
46	Deerfield	Route 5/10 / Memorial Street / Pine Nook Road
47	Northfield	Route 10 / Fort Sumner Turner Road / Lamplighter Way
48	Greenfield	High Street / Hastings Street
49	Bernardston	Route 10 (Northfield Road) / Route 142 (Mount Hermon Station Road) / Deacon Parker Road
50	Greenfield	French King Highway / Loomis Road



frcog Franklin Regional Council of Governments

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

14

Air Quality Conformity Determination

2020 Regional Transportation Plan

14 Air Quality Conformity Determination

This section documents the latest air quality conformity determination for the 1997 ozone National Ambient Air Quality Standards (NAAQS) in the Franklin County Transportation Planning Organization (FCTPO) Region. It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance. Further details and background information are provided below:

Introduction

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs), and at such other times as required by regulation. Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones (42 U.S.C. 7506(c)(1)). EPA's transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP (40 CFR Parts 51.390 and 93).

A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been re-designated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

Legislative and Regulatory Background

The entire Commonwealth of Massachusetts was previously classified as nonattainment for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprised the Western Massachusetts ozone nonattainment area. With these classifications, the 1990 Clean Air Act Amendments (CAAA) required the Commonwealth to reduce its emissions of volatile organic coTPOunds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation to achieve attainment of the ozone standard.

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire commonwealth of Massachusetts was classified as being in serious nonattainment for the one-hour ozone standard, with a required attainment date of 1999.The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one- hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004.The eight-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (March 27, 2008; 73 FR 16483). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration so the standard would remain at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011 proposing that only Dukes County would be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, (77 FR 30088), the final rule was published in the Federal Register, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule published on May 21, 2012 (77 FR 30160), revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012 effective date of the 2008 NAAQS.

Also on May 21, 2012, the air quality designations areas for the 2008 NAAQS were published in the Federal Register. In this Federal Register, the only area in Massachusetts that was designated as nonattainment is Dukes County. All other Massachusetts counties were designated as attainment/unclassified for the 2008 standard. On March 6, 2015, (80 FR 12264, effective April 6, 2015) EPA published the Final Rulemaking, "Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule." This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS.

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* ("*South Coast II*," 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. These conformity determinations are required in these areas after February 16, 2019. On November 29, 2018, EPA issued *Transportation Conformity Guidance for the South Coast II Court Decision* (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, are now defined as "orphan nonattainment areas" – areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of its revocation (80 FR 12264, March 6, 2015) and were designated attainment for the 2008 ozone NAAQS in EPA's original designations rule for this NAAQS (77 FR 30160, May 21, 2012).

Current Conformity Determination

This section documents recent progress made by MassDOT and the MPOs in working to help achieve greenhouse gas (GHG) reduction goals as outlined in state regulations applicable to Massachusetts. This "progress report" estimates future carbon dioxide (CO_2) emissions from the transportation sector as part of meeting the GHG reduction goals established through the Commonwealth's Global Warming Solutions Act (GWSA).

GWSA Transportation Status: Future Carbon Dioxide Emissions Reductions

The Global Warming Solutions Act of 2008 requires statewide reductions in greenhouse gas (CO2) emissions of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050.

The Commonwealth's thirteen metropolitan planning organizations (MPOs) are involved in helping to achieve greenhouse gas reductions mandated under the GWSA. The MPOs work closely with the Massachusetts Department of Transportation (MassDOT) and other involved agencies to develop common transportation goals, policies, and projects that would help to reduce GHG emission levels statewide, and meet the specific requirements of the GWSA regulation – *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation (310 CMR 60.05).* The purpose of this regulation is to assist the Commonwealth in achieving their adopted GHG emission reduction goals by:

- Requiring each MPO to evaluate and report the aggregate GHG emissions and impacts of both its Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP).
- Requiring each MPO, in consultation with MassDOT, to develop and utilize procedures to prioritize and select projects in its RTP and TIP based on factors that include GHG emissions and impacts.

Meeting the requirements of this regulation is being achieved through the transportation goals and policies contained in the 2020 RTPs, the major projects planned in the RTPs, and the mix of new transportation projects that are programmed and implemented through the TIPs.

The GHG evaluation and reporting processes enable the MPOs and MassDOT to identify the anticipated GHG impacts of the planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects. This approach is consistent with the greenhouse gas reduction policies of promoting healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments; as well as supporting smart growth development patterns through the creation of a balanced multi-modal transportation system. All of the MPOs and MassDOT are working toward reducing greenhouse gases with "sustainable" transportation plans, actions, and strategies that include (but are not limited to):

- Reducing emissions from construction and operations
- Using more fuel-efficient fleets

- Implementing and expanding travel demand management programs
- Encouraging eco-driving
- Providing mitigation for development projects
- Improving pedestrian, bicycle, and public transit infrastructure and operations (healthy transportation)
- Investing in higher density, mixed use, and transit-oriented developments (smart growth)

Regional GHG Evaluation and Reporting in RTPs

MassDOT coordinated with MPOs and regional planning agency (RPA) staffs on the implementation of GHG evaluation and reporting in development of each MPO's 2012 and 2016 RTPs. This collaboration has continued for the MPOs' 2020 RTPs and 2020-24 TIPs. Working together, MassDOT and the MPOs have attained the following milestones:

- Modeling and long-range statewide projections for GHG emissions resulting from the transportation sector, as a supplement to the 2020 RTPs. Using the newly updated statewide travel demand model, GHG emissions have been projected for 2020 no-build (base) and build (action) conditions, and for 2040 no-build (base) and build (action) conditions (see the chart in this section for the results of this modeling).

- All of the MPOs have addressed GHG emission reduction projections in their RTPs (including the statewide estimates in the chart that follows), along with a discussion of climate change and a statement of MPO support for reducing GHG emissions from transportation as a regional goal.

MassDOT's statewide estimates of CO_2 emissions resulting from the collective list of all recommended projects in all of the Massachusetts RTPs combined are presented in the table below. Emissions estimates incorporate the latest planning assumptions including updated socio-economic projections consistent with the 2020 RTPs:

Massachusetts Statewide Aggregate CO_2 Estimated Emissions Impacts from Transportation

(all emissions in tons per summer day)

Year	CO_2 Action Emissions	CO_2 Base Emissions	Difference (Action – Base)
2016	86,035.6	86,035.6	n/a
2020	75,675.6	75,865.9	-190.3
2040	54,484.2	54,702.2	-218.0

This analysis includes only those larger, regionally significant projects that are included in the statewide travel demand model. Many other types of projects that cannot be accounted for in the model (such as bicycle and pedestrian facilities, shuttle services, intersection improvements, etc.), are covered in each MPO region's RTP with either "qualitative" assessments of likely CO_2 change, or actual quantitative estimates listed for each project.

As shown above, collectively, all the projects in the RTPs in the 2020 Action scenario provide a statewide reduction of over 190 tons of CO_2 per day compared to the base case. The 2040 Action scenario estimates a reduction of 218 tons per day of CO_2 emissions compared to the base case.

These results demonstrate that the transportation sector is expected to continue making positive progress in contributing to the achievement of GHG reduction targets consistent with the requirements of the GWSA. MassDOT and the MPOs will continue to advocate for steps needed to accomplish the Commonwealth's long-term goals for greenhouse gas reductions.

2020 Franklin County Regional Transportation Plan

310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation

Self-Certification Compliance Statement for Metropolitan Planning Organizations

This will certify that the 2020 Regional Transportation Plan for Franklin County Transportation Planning Organization is in compliance with all applicable requirements in the State Regulation 310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation. The regulation requires the Metropolitan Planning Organizations (MPOs) to:

1. 310 CMR 60.05, 3(b)(1)(a): Evaluate and track the GHG emissions and impacts of RTPs and TIPs;
2. 310 CMR 60.05, 3(b)(1)(b): In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs, TIPs, and STIPs based on factors that include GHG emissions and impacts;
3. 310 CMR 60.05, 3(b)(1)(c): Quantify net GHG emissions and impacts resulting from the projects in RTPs and TIPs and have made efforts to minimize GHG emissions and impacts;
4. 310 CMR 60.05, 3(b)(1)(d): Determine in consultation with the RPA that the appropriate planning assumptions used for GHG emissions modeling are consistent with local land use policies, or that local authorities have made documented and credible commitments to establishing such consistency;
5. 310 CMR 60.05, 4(a)(2)(a): Develop RTPs and TIPs;
6. 310 CMR 60.05, 4(a)(2)(b): Ensure that RPAs are using appropriate planning assumptions;
7. 310 CMR 60.05, 4(a)(2)(c): Perform regional GHG emissions analysis of RTPs and TIPs;
8. 310 CMR 60.05, 4(a)(2)(d): Calculate GHG emissions for RTPs and TIPs;
9. 310 CMR 60.05, 4(a)(2)(e): Develop public consultation procedures for GHG reporting and related GWSA requirements consistent with current and approved regional public participation plans;
10. 310 CMR 60.05, 4(c): Prior to making final endorsements on the RTPs, TIPs, STIPs, and projects included in these plans, MassDOT and the MPOs shall include the GHG Assessment and information on related GWSA activities in RTPs, TIPs, and STIPs and provide an opportunity for public review and comment on the RTPs, TIPs, and STIPs.
11. 310 CMR 60.05, 6(a): After a final GHG assessment has been made by MassDOT and the MPOs, MassDOT and the MPOs shall submit MPO-endorsed RTPs, TIPs or projects within 30 days of endorsement to the Department for review of the GHG assessment.

for 7-23-19

Stephanie Pollack, Secretary and CEO
MassDOT

Date

for 7/23/19

Jonathan Gulliver, Highway Administrator
MassDOT Highway Division

Date

(signatures continued on next sheet)

Maureen Mullaney for

Kevin Fox, Chair
FRCOG Executive Committee

7/23/19
Date

Lance Fritz, Chair
Franklin Regional Transit Authority

Date

William Martin, Mayor
City of Greenfield

Date

Bill Perlman
Regionally Elected Representative to the FRCOG Executive Committee

Date

Robert A Dean

Robert Dean
West County Sub-Regional Appointment

7-23-19
Date

Vacant
Central County Sub-Regional Appointment

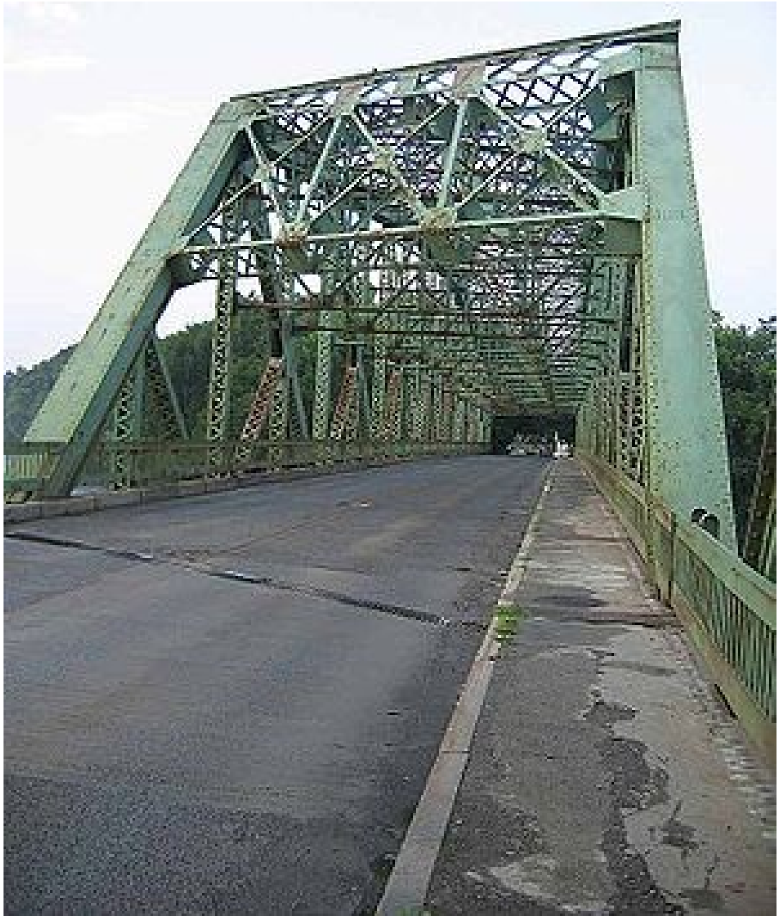
Date

Jane Peirce
East County Sub-Regional Appointment

Date

15

Recommended Projects



2020 Regional Transportation Plan

15 Recommended Projects

As part of the development of the *Franklin Regional Transportation Plan*, regional needs and priorities for a 20 year horizon (from 2020 through 2040) were identified. Recommended projects were developed based on these identified needs and priorities. This chapter contains a summary of the recommended projects. These recommendations were identified during an extensive public participation process that included outreach, informational meetings and input sessions throughout Franklin County. In addition to the public input that was received, transportation staff conducted research and analyzed transportation-related regional data to identify transportation trends and needs. The findings and trends that shaped the recommended projects are summarized in the following paragraphs.

Overall, an interest in public transit, walking, bicycling, and more environmentally sensitive options was expressed strongly and frequently throughout the public participation process. The need for improved public transit in the region was by far the most frequently expressed comment during the public participation process. Many individuals expressed a desire to take public transit for economic (to save money) and/or environmental reasons (reduced emissions/better for the environment), but are unable to do so because of limited routes and/or schedules. The continued support and enthusiasm for bicycling in Franklin County for both transportation and recreational purposes was confirmed during the public input sessions. An interest in increased resiliency and the threat of climate change was also a frequent theme in the public's comments.

The safety of the roads in Franklin County was also a strong theme. The great strides that have been made to make the roads in Franklin County safer were acknowledged. However, the fact that there are additional improvements that could be evaluated and possibly implemented was recognized – in particular with how vehicles, pedestrians, and bicyclists can share the road safely. Specific recommendations for additional safety evaluations are detailed in the plan and in this chapter.

The rural and scenic character of Franklin County remains an important consideration as road and bridge projects are planned and implemented. The scenic and natural resources of the area should be taken into consideration when improvements are designed so that they can be implemented in a context sensitive manner and in a way that not only protects the environment, but enhances it.

The many Scenic Byways that run through the area make Franklin County a special place and help bring tourism and economic development to the region. As a result, the needs of tourists and the unique requirements of a scenic byway should be taken into consideration during any transportation project planning.

Regional demographic figures show that Franklin County's population is aging. Future transportation planning should take this into consideration. The transportation needs of senior citizens should be considered.

Additional high-speed broadband service that is currently being planned and implemented in the region will also have an impact on the county's transportation needs in the future. Improved internet access will allow more people to have the option of working from home. In addition, the arrival of broadband may attract new businesses and residents to Franklin County, which could increase the number of vehicles on the roads as people may choose to live in more remote parts of the region.

Top Recommended Projects

The FAST Act requires that all recommended projects with a total cost of $20 million or greater, or that are regionally significant for air quality conformity purposes, be included in the Regional Transportation Plan. The Franklin County region does not have any projects of this magnitude recommended for the twenty year planning horizon. However, there are many projects that are a priority for the Franklin County transportation network.

The following is a listing of the twenty-five top transportation recommendations to be pursued through 2040. The recommended projects are not listed in a ranked, prioritized order, but instead represent the most important projects to the region. The projects are being listed to highlight their importance. The map at the end of the chapter shows the location of the recommendations.

Top 25 Transportation Recommendations for Franklin County

Public Transit

- Advocate and support regional expanded passenger rail service between Greenfield and Springfield.
- Plan for east-west passenger rail service between Franklin County and Boston.
- Increase frequency and extend bus service hours during evenings and weekends.

- Expand fixed bus service routes throughout the county, including to the North County towns of Bernardston and Northfield.
- Create a microtransit service program for the region.
- Create additional park and ride lots throughout Franklin County.
- Continue to support the funding and construction of a new FRTA Operations and Maintenance Facility.

Safety Improvements

- Advance the planned Route 2 East Safety Improvements in Farley, Erving Center, and Gill/Greenfield.
- Explore safety concerns at the intersection of Route 5/10 and Christian Lane in Whately.
- Reconstruct intersections and improve traffic flow on Route 2 west at the Big Y Shopping area in Greenfield.
- Continue supporting, the funding, and use of the small bridge program to replace structurally deficient bridges in small communities.

Major Highway Projects

- Rehabilitate the General Pierce Bridge in Greenfield/Montague.
- Resurface roadway, construct pedestrian and transit accommodations, and create safety features on Routes 5/10 in Whately and Deerfield.

Pedestrian and Bicycling

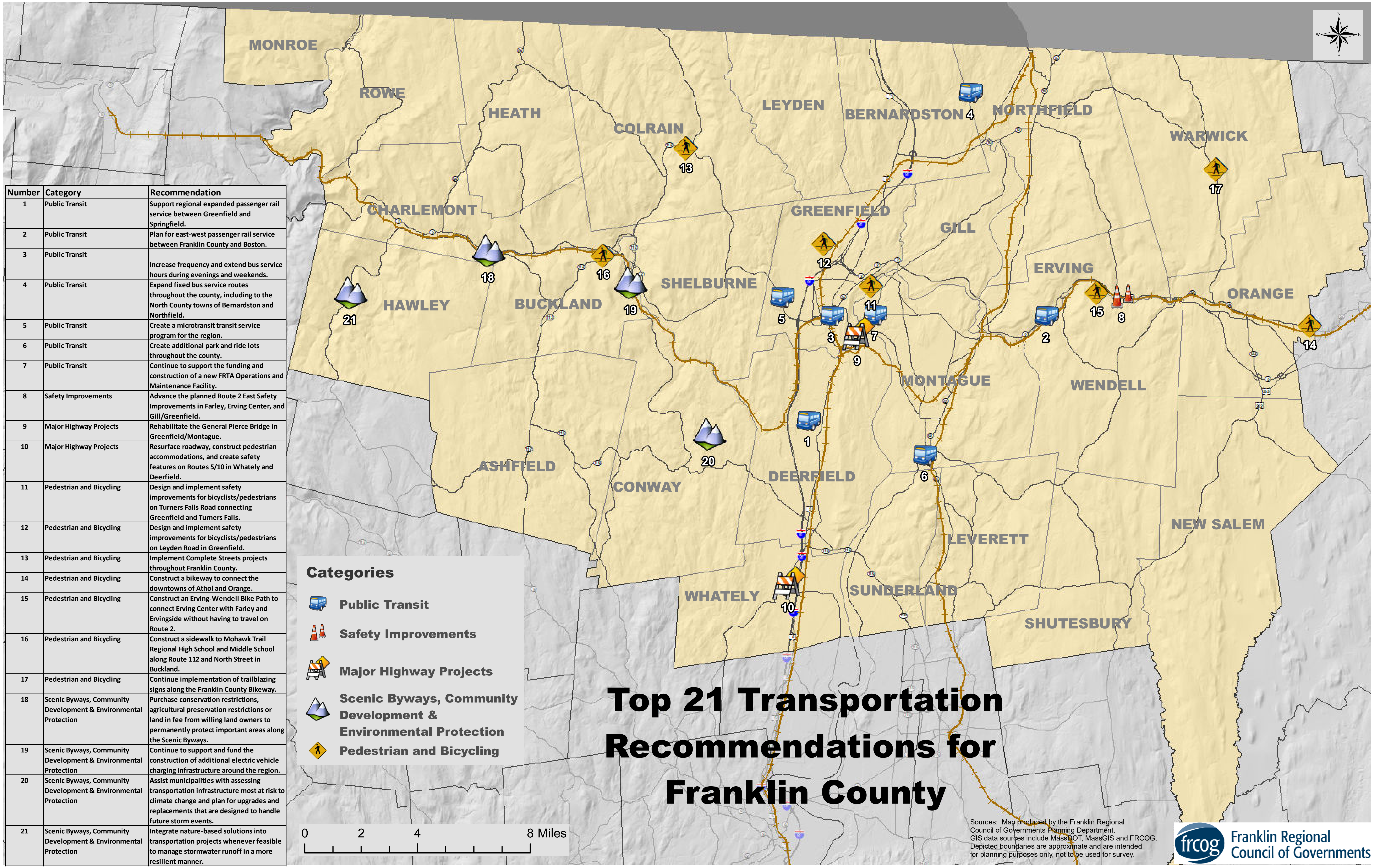
- Design and implement safety and infrastructure improvements for bicyclists and pedestrians on Turners Falls Road connecting Greenfield and Turners Falls.
- Design and implement safety and infrastructure improvements for bicyclists and pedestrians on Leyden Road in Greenfield.
- Replace the Schell Bridge with a bicycle and pedestrian bridge across the Connecticut River in Northfield.
- Implement Complete Streets projects throughout Franklin County.
- Plan and implement a bikeway to connect the downtowns of Athol and Orange.
- Plan and implement an Erving-Wendell Bike Path to connect Erving Center with Farley and Ervingside without having to travel on Route 2.
- Construct a sidewalk to Buckland Recreation Area and Mohawk Trail Regional High School and Middle School along Route 112 and North Street in Buckland.
- Install trailblazing signs on the Franklin County Bikeway.

Scenic Byways, Community Development, & Environmental Protection

- Purchase conservation restrictions, agricultural preservation restrictions or land in fee from willing land owners to permanently protect important areas along the Scenic Byways.
- Continue to support and fund the construction of additional electric vehicle charging infrastructure around the region.
- Assist municipalities with assessing transportation infrastructure most at risk to climate change and plan for upgrades and replacements that are designed to handle future storm events.
- Design and install a prefabricated pedestrian bridge to connect the Turners Falls Canal District with parking, bike path, and downtown Turners Falls.

View of Canal District in Turners Falls with Connecting 5th Street Bridge

Top 21 Transportation Recommendations for Franklin County



Number	Category	Recommendation
1	Public Transit	Support regional expanded passenger rail service between Greenfield and Springfield.
2	Public Transit	Plan for east-west passenger rail service between Franklin County and Boston.
3	Public Transit	Increase frequency and extend bus service hours during evenings and weekends.
4	Public Transit	Expand fixed bus service routes throughout the county, including to the North County towns of Bernardston and Northfield.
5	Public Transit	Create a microtransit transit service program for the region.
6	Public Transit	Create additional park and ride lots throughout the county.
7	Public Transit	Continue to support the funding and construction of a new FRTA Operations and Maintenance Facility.
8	Safety Improvements	Advance the planned Route 2 East Safety Improvements in Farley, Erving Center, and Gill/Greenfield.
9	Major Highway Projects	Rehabilitate the General Pierce Bridge in Greenfield/Montague.
10	Major Highway Projects	Resurface roadway, construct pedestrian accommodations, and create safety features on Routes 5/10 in Whately and Deerfield.
11	Pedestrian and Bicycling	Design and implement safety improvements for bicyclists/pedestrians on Turners Falls Road connecting Greenfield and Turners Falls.
12	Pedestrian and Bicycling	Design and implement safety improvements for bicyclists/pedestrians on Leyden Road in Greenfield.
13	Pedestrian and Bicycling	Implement Complete Streets projects throughout Franklin County.
14	Pedestrian and Bicycling	Construct a bikeway to connect the downtowns of Athol and Orange.
15	Pedestrian and Bicycling	Construct an Erving-Wendell Bike Path to connect Erving Center with Farley and Ervingside without having to travel on Route 2.
16	Pedestrian and Bicycling	Construct a sidewalk to Mohawk Trail Regional High School and Middle School along Route 112 and North Street in Buckland.
17	Pedestrian and Bicycling	Continue implementation of trailblazing signs along the Franklin County Bikeway.
18	Scenic Byways, Community Development & Environmental Protection	Purchase conservation restrictions, agricultural preservation restrictions or land in fee from willing land owners to permanently protect important areas along the Scenic Byways.
19	Scenic Byways, Community Development & Environmental Protection	Continue to support and fund the construction of additional electric vehicle charging infrastructure around the region.
20	Scenic Byways, Community Development & Environmental Protection	Assist municipalities with assessing transportation infrastructure most at risk to climate change and plan for upgrades and replacements that are designed to handle future storm events.
21	Scenic Byways, Community Development & Environmental Protection	Integrate nature-based solutions into transportation projects whenever feasible to manage stormwater runoff in a more resilient manner.

Sources: Map produced by the Franklin Regional Council of Governments Planning Department.
GIS data sources include MassDOT, MassGIS and FRCOG.
Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments

16

Financial Constraint

2020 Regional Transportation Plan

16 Financial Constraints

It is important to provide a financial context to transportation planning so that projects can be prioritized based on the projected availability of future funding. This plan is financially constrained based on financial information provided by MassDOT for 2020 to 2040.

Funding Available

Funding Available for Highway and Bridge Projects

The Federal Highway Administration funds and State Highway and Bridge funds were projected statewide for five-year timeframes for the following funding categories:

- Regional Discretionary Funding;
- Non-Interstate DOT Pavement;
- Interstate Pavement;
- Remaining Statewide Programs; and
- Non-Federal Aid Bridge Preservation.

The Statewide Bridge Program does not allocate funding by the region, but instead provides money on a discretionary basis across the state based on bridge conditions.

Local aid funding sources such as Chapter 90 and the MassWorks Program are not included in the MassDOT funding projections. The MassDOT projections were based on the assumption that funding levels would increase by a 2.2 percent annual increase after the year 2020, based on FAST Act authorization.

Based on these funding projects, a total of $475,481,383 is anticipated to be available to Franklin County for highway-related transportation improvements between 2020 and 2040. The forecasted funding levels for the Franklin Region were based on the projected amount available to Metropolitan Planning Organizations statewide, and the following factors:

- **Funds for Regional Discretionary:** Projected regional funding for Regional Discretionary projects are based on the regional share formula for the Statewide Highway Funds developed by the Massachusetts Association of Regional Planning Agencies (MARPA). Under the MARPA formula, the Franklin Region is allotted 2.54% of the federal funds set aside for MPO/TPO prioritization.

- **Funds for Bridges:** Projected regional funding for bridge improvements and repairs is based on each region's percentage of federal-aid eligible bridges. The Franklin Region's percentage of federal-aid eligible bridges is 6.83%.
- **Funds for Interstate Maintenance:** Projected regional funding for interstate maintenance projects is based on the regional share of Interstate lane mileage, excluding the Massachusetts Turnpike. The Franklin Region has 3.78% of interstate lane mileage.

Table 16-1 shows the available highway funding for the Franklin Region between 2020 and 2040. Table 16-2 shows the available bridge funding statewide between 2020 and 2040.

Table 16-1: Estimated Regional Transportation Plan Highway Funding for 2020-2040

Funding	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
Total Funding Available for Programming in the Franklin Region RTP	$89,480,651	$101,531,749	$121,996,077	$134,069,142	$28,403,765	$475,481,383
Regional Discretionary Funding	$31,514,375	$36,131,564	$44,364,881	$49,171,850	$10,458,757	$171,641,426
Non-Interstate DOT Pavement Projects	$10,777,598	$12,829,447	$15,752,899	$17,459,737	$3,713,652	$60,533,332
Interstate Pavement Projects	$5,984,138	$7,556,347	$9,278,215	$10,283,517	$2,187,284	$35,289,501
Remaining Statewide Programs	$28,506,040	$32,036,524	$39,336,702	$43,598,864	$9,273,394	$152,751,525
NFA Bridge Preservation	$12,698,500	$12,977,867	$13,263,380	$13,555,174	$2,770,678	$55,265,599

Table 16-2: Bridges

Funds Available	Amount of Funding per Timeframe Statewide					
	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
	$985,237,695	$1,120,781,229	$1,376,174,182	$1,525,283,718	$324,424,877	$5,331,901,701

Funding Available for Transit Projects

As with highway and bridge funding, the estimated costs of transit recommendations and projected revenue also need to be reviewed to ensure financial constraint. Estimates of available transit funding were provided by the MassDOT Rail and Transit Division. Federal funds must be used for capital projects. Capital funds may only be spent on tangible items such as equipment, preventative maintenance of vehicles, facilities and equipment, facility improvements and the purchase of vehicles. Operating expenses must come from grants, state and local funding and farebox revenue. Operating expenses cover salaries, benefits, advertising and marketing expenses and other cash needs. A summary of the projected transit funding for the Franklin Regional Transit Authority from 2020 to 2040 is in Table 16-3 at the end of this chapter.

The transit funds were projected on a statewide basis by MassDOT Rail and Transit Division, and are broken down in this Plan by the same five time periods as the highway and bridge funds, into the following federal funding categories:

- Urbanized Area Formula Funding (5307 Program);
- Non-Urbanized Area Formula Funding (5311 Program);
- State of Good Repair Grants (5337 Program); and
- Bus and Bus Facilities Funding (5539 Program).

A total of $31,528,639 is anticipated to be available to Franklin County for transit-related transportation projects between 2020 and 2040. Projects formerly funded under Jobs Access Reverse Commute (JARC) are now eligible activities under Section 5311. The forecasted funding levels assume a 1.5% annual inflationary increase beyond the year 2020. The FRTA is not eligible to receive 5307 Program funding.

For funding under the 5310 Program, regional funding estimates were based on the past distribution of the Mobility Assistance Program (MAP). Using this approach, the Franklin Region receives 5.73% of the statewide 5310 Program funds. This approach was agreed to by the MassDOT Rail and Transit Division and the Massachusetts Association of Regional Transit Authorities (MARTA), and varies from a previous approach that based each region's funding on its percentage of the statewide elderly and disabled population. The projected State Capital Investment and State Assistance for Operations funds for each region were estimated based on current funding levels for these programs.

Table 16-3 shows transit funding for the Franklin Region between 2020 and 2040.

Table 16-3: Estimated Massachusetts Transit Program Funding Forecasts 2020-2040

Timeframe	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
Total Funding Available for Programming in the Franklin Region RTP	$6,315,003	$7,003,089	$7,766,239	$8,612,350	$1,831,958	$31,528,639
Section 5307	----	----	----	----	----	----
Section 5311	$6,315,003	$7,003,089	$7,766,239	$8,612,350	$1,831,958	$31,528,639
Section 5337	----	----	----	----	----	----
Section 5339	----	----	----	----	----	----

Financially Constrained Plan

For financial planning purposes, Regional Transportation Plans are required to show that there is sufficient funding projected to be available to cover the costs of regionally significant projects (those projects that are estimated to cost greater than $20 million or could potentially increase greenhouse gas emissions). The Franklin Region has three projects that are close to this threshold and all are bridge projects, which are funded by the Statewide Bridge Program. There are no future projects within the region that will increase roadway capacity or are anticipated to have a negative impact on air quality.

To date, there is a total of $241,899,036 of road, bridge, and transit projects that have been identified as needed for the Franklin County region (see the Table at the end of this chapter for a list of all identified projects to date). Almost half of this projected cost estimate is federal-aid eligible bridges that are typically funded by the Statewide Bridge program. The remaining needs of $126,373,546 are composed of non-federal aid bridges, highway projects, and transit projects. Based on the estimated $475,481,383 that is projected to be available for highway and bridge projects, and the $31,528,639 available for transit, there is sufficient funding to accommodate these regional discretionary needs even when a 5-10% margin of error is applied to the anticipated projects. Therefore, this Plan is financially constrained.

Long-Term Regional Targets

To ensure that the FCTPO aligns its future investments with the priorities set by the Regional Transportation Plan, this section sets long-term regional targets for categories of spending. There are four categories of project spending:

1. Bridges
2. Reconstruction/Resurfacing
3. Transit
4. Multimodal/CMAQ

It should be noted that many of the projects in these categories have overlap and safety improvements are incorporated into many of them. Between 2008 and 2018, the FCTPO allocated TIP funding in each of the categories in the following proportions.

Table 16-4: TIP Funding between 2008-2018				
Category	# of Projects	% of Projects	Funding Spent	% of Funding Spent
Bridges	28	56%	$191,542,780	73%
Reconstruction/Resurfacing	11	22%	$43,404,246	17%
Transit*	---	2%	$44,032,608	15%
Multimodal/ CMAQ	10	20%	$13,090,246	5%
Total	**50**		**$260,837,272**	

*The number of transit projects were not calculated since project types vary greatly.

To ensure that future spending is aligned with long-term priorities, the following targets have been set for each category that the FCTPO will strive to meet when allocating funding during the TIP process. The new targets reflect an increased priority on transit and multimodal projects.

Table 16-5: Long-Term Regional Funding Targets for FCTPO TIPs				
Category	% of *Past* Projects	% of Future Projects	% of *Past* Funding	% of Future Funding
Bridges	56%	54%	73%	60%
Reconstruction/ Resurfacing	22%	20%	17%	10%
Transit*	2%	6%	15%	20%
Multimodal/ CMAQ	20%	20%	5%	10%

List of Projects

The following Table 16-6 contains a list of projects that have been identified for the Franklin region based on municipal and regional needs, and are in alignment with RTP planning priorities. These projects have been assigned Project ID numbers through the MassDOT Project Review process, but may not yet be under design. The Estimated Cost reflects the cost of project construction/ implementation. Not all projects have been assigned a TEC score due to the preliminary nature of those projects – they do not have sufficient design informationavailable at this point to be able to score them appropriately. Table 16-6 does not include planning projects. This RTP, with its goals and priorities, will serve as a guide to the FCTPO as its programs future TIPs.

Table 16-6: FCTPO Projects 2019-2040

MassDOT Project ID	Location	MassDOT Project Description	Estimated Advertising Date	Estimated Cost	TEC Score	GHG Analysis Type	GHG CO_2 Imact (kg/yr)	GHG Impact Description
606507	Charlemont	CHARLEMONT- ROADWAY RECONSTRUCTION AND VILLAGE CENTER TRAFFIC CALMING ON ROUTE 2, FROM MM 29.5 TO MM 31.0	2019	$ 7,860,350	9.4	Quantified	144	Quantiied Descrease in Emissions from Complete Streets Project
606548	Greenfield	GREENFIELD- BRIDGE REPLACEMENT, G-12-052 (0XR) & G-12-053 (0XT), I-91 (NB & SB) OVER BMRR	2019	$ 20,563,987	n/a	Qualitative		No assumed impact/negligible impact on emissions
607538	Colrain	COLRAIN- INTERSECTION IMPROVEMENTS @ MAIN ROAD, JACKSONVILLE ROAD (ROUTE 112) & GREENFIELD ROAD	2020	$ 1,917,473	11.3	Quantified	1982	Quantiied Descrease in Emissions from Traffic Operational Improvement
607245	Sunderland	SUNDERLAND- RESURFACING & RELATED WORK ON A SECTION OF NORTH MAIN STREET (ROUTE 47), FROM ROUTE 116 TO CLAYBROOK DRIVE	2020	$ 2,655,824	10.8	Quantified	990	Quantiied Descrease in Emissions from Complete Streets Project
606011	Deerfield-Whately	DEERFIELD- WHATELY- RESURFACING & RELATED WORK ON ROUTES 5 &10, FROM OLD STATE ROAD TO CONWAY ROAD (1.1 MILES)	2020	$ 2,004,886	10.3	Quantified	474	Quantiied Descrease in Emissions from Complete Streets Project
604189	Bernardston	BERNARDSTON- BRIDGE REPLACEMENT, B-10-004, U.S. ROUTE 5 (BRATTLEBORO ROAD) OVER SHATTUCK BROOK	2020	$ 2,993,214	n/a	Qualitative		No assumed impact/negligible impact on emissions
608644	Charlemont	CHARLEMONT - BRIDGE REPLACEMENT, C-05-008, TOWER ROAD OVER CHICKLEY RIVER	2020	$ 3,839,236	n/a	Qualitative		No assumed impact/negligible impact on emissions
608643	Charlemont	CHARLEMONT- BRIDGE REPLACEMENT, C-05-037, WEST OXBOW ROAD OVER WILDER BROOK	2020	$ 1,441,401	n/a	Qualitative		No assumed impact/negligible impact on emissions
606309	Orange	ORANGE- BRIDGE REPLACEMENT, O-03-021, ROUTE 2 OVER ROUTE 202	2020	$ 17,709,966	n/a	Qualitative		No assumed impact/negligible impact on emissions
606463	Buckland	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SOUTH STREET & CONWAY ROAD	2021 2022	$ 8,183,247	9.1	Qualitative		No assumed impact/negligible impact on emissions
RTD0008232		TRANSIT MAINTENANCE FACILITY	2021	$ 9,000,000	n/a	Qualitative		No assumed impact/negligible impact on emissions
607588	Northfield	NORTHFIELD- CONSTRUCT BIKE/PED BRIDGE TO REPLACE N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER	2021	$ 16,745,966	6.6	Quantified	246	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure
607610	Buckland	BUCKLAND- CONSTRUCTION OF BICYCLE SHOULDERS ON ROUTE 112, FROM MOHAWK TRAIL REGIONAL HIGH SCHOOL TO NORTH STREET	2022	$ 1,620,000	5.2	Quantified	199	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure
608414	Greenfield	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2022	$ 2,140,368	9.2	Qualitative		Qualitative Decrease in Emissions
608855	Rowe	ROWE- BRIDGE REPLACEMENT, R-10-008, CYRUS STAGE ROAD OVER POTTER BROOK	2022	$ 1,990,560	n/a	Qualitative		No assumed impact/negligible impact on emissions
608858	Charlemont	CHARLEMONT- BRIDGE REPLACEMENT, C-05-042, EAST OXBOW ROAD OVER OXBOW BROOK	2022	$ 1,396,176	n/a	Qualitative		No assumed impact/negligible impact on emissions
608849	Leverett	LEVERETT- BRIDGE REPLACEMENT, L-09-003, MILLERS ROAD OVER ROARING BROOK	2022	$ 1,128,912	n/a	Qualitative		No assumed impact/negligible impact on emissions
RTD0007568		TRANSIT FLEET REPLACEMENT <30FT BUS	2022	$ 645,000	n/a	Quantified	6938	Quantified Decrease in Emissions from Bus Replacement
603371	Orange	ORANGE- RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT	2023	$ 5,515,026	10.3	Quantified	295	Quantified Decrease in Emissions from Complete Streets Project
608634	Deerfield	DEERFIELD - BRIDGE PRESERVATION D-06-001, UPPER ROAD OVER DEERFIELD RIVER	2023	$ 7,599,392	n/a	Qualitative		No assumed impact/negligible impact on emissions
608649	Colrain	COLRAIN - DECK PRESERVATION, C-18-010 & C-18-012, ROUTE 112 OVER THE NORTH RIVER	2023	$ 522,200	n/a	Qualitative		No assumed impact/negligible impact on emissions
609082	Conway	CONWAY- BRIDGE REPLACEMENT, C-20-004, NORTH POLAND ROAD OVER POLAND BROOK	2023	$ 3,997,056	n/a	Qualitative		No assumed impact/negligible impact on emissions
608724	Greenfield	GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN ROAD TO MILL STREET (0.43 MILES)	2024	$ 4,144,135	7.8	Quantified	5127	Quantified Decrease in Emissions from Complete Streets Project
609427	Montague	MONTAGUE- BRIDGE REPLACEMENT, M-28-026, SOUTH STREET OVER SAWMILL RIVER	2024	$ 2,942,688	n/a	Qualitative		No assumed impact/negligible impact on emissions
609398	Erving	ERVING- RESURFACING AND RELATED WORK ON ROUTE 2	2024	$ 3,588,750	n/a	Qualitative		No assumed impact/negligible impact on emissions
605983	Whately	WHATELY- REHABILITATION OF HAYDENVILLE ROAD, FROM CONWAY ROAD TO THE WILLIAMSBURG T.L. (2.7 MILES)	Appendix	$ 2,016,000	7.3	Qualitative		No assumed impact/negligible impact on emissions
603727	Athol-Orange	ATHOL- ORANGE- BRIDGE REPLACEMENT, A-15-017=O-03-001, LOGAN ROAD OVER THE EAST BRANCH OF THE TULLY RIVER	Appendix	$ 1,248,000	n/a	Qualitative		No assumed impact/negligible impact on emissions
607674	Buckland-Charlemont	BUCKLAND- CHARLEMONT- BRIDGE REHABILITATION, B-28-009=C-05-013, ST 2 OVER DEERFIELD RIVER	Appendix	$ 21,618,300	n/a	Qualitative		No assumed impact/negligible impact on emissions

Table 16-6: FCTPO Projects 2019-2040

MassDOT Project ID	Location	MassDOT Project Description	Estimated Advertising Date	Estimated Cost	TEC Score	GHG Analysis Type	GHG CO_2 Imact (kg/yr)	GHG Impact Description
605882	Buckland-Shelburne	BUCKLAND- SHELBURNE- BRIDGE PRESERVATION, B-28-022=S-11-001, ROUTE 2A (BRIDGE STREET) OVER DEERFIELD RIVER	Appendix	$ 1,010,000	n/a	Qualitative		No assumed impact/negligible impact on emissions
605286	Charlemont	CHARLEMONT- BRIDGE REPLACEMENT, C-05-002, ZOAR ROAD OVER PELHAM BROOK	Appendix	$ 2,566,806	n/a	Qualitative		No assumed impact/negligible impact on emissions
606158	Charlemont	CHARLEMONT- BRIDGE REPLACEMENT, C-05-020, ROUTE 2 OVER TROUT BROOK	Appendix	$ 1,342,050	n/a	Qualitative		No assumed impact/negligible impact on emissions
605732	Deerfield	DEERFIELD- BRIDGE REPLACEMENT, D-06-030, ROUTE 116 OVER THE MILL RIVER	Appendix	$ 2,300,000	n/a	Qualitative		No assumed impact/negligible impact on emissions
603604	Erving	ERVING- BRIDGE REPLACEMENT, E-10-011, CHURCH STREET OVER KEYUP BROOK	Appendix	$ 1,820,900	n/a	Qualitative		No assumed impact/negligible impact on emissions
601186	Greenfield-Montague	GREENFIELD- MONTAGUE- BRIDGE REHABILITATION, G-12-020=M-28-001, MONTAGUE CITY ROAD OVER CONNECTICUT RIVER (GENERAL PIERCE BR)	Appendix	$ 22,740,000	n/a	Qualitative		No assumed impact/negligible impact on emissions
607678	Heath	HEATH- BRIDGE REPLACEMENT, H-14-007, JACKSONVILLE STREET (SR 8A) OVER THE WEST BRANCH BROOK	Appendix	$ 1,711,545	n/a	Qualitative		No assumed impact/negligible impact on emissions
602319	Northfield	NORTHFIELD- BRIDGE REPLACEMENT, N-22-010, BIRNAM ROAD OVER MILL BROOK	Appendix	$ 2,573,234	n/a	Qualitative		No assumed impact/negligible impact on emissions
604881	Orange	ORANGE- BRIDGE REPLACEMENT, 0-03-015, BROOKSIDE ROAD OVER PAN AM RAILWAYS (B&M RR)	Appendix	$ 3,264,000	n/a	Qualitative		No assumed impact/negligible impact on emissions
603935		DISTRICT 2- SCOUR COUNTERMEASURES & SUBSTRUCTURE MAINTENANCE OF D-06-002=G-12-003, M-27-022=P-01-033, P-01-013, W-19-005, W-39-007	n/a	$ 3,396,525	n/a	Qualitative		No assumed impact/negligible impact on emissions
608056	Erving-Gill	ERVING- GILL- PROTECTIVE SCREENING INSTALLATION ON E-10-014=G-04-009, ROUTE 2 OVER CONNECTICUT RIVER	n/a	$ 2,871,737	n/a	Qualitative		No assumed impact/negligible impact on emissions
609202	Greenfield	GREENFIELD- RESURFACING AND RELATED WORK ON MONTAGUE CITY ROAD	Not Listed	$ 3,343,983	n/a	Qualitative		No assumed impact/negligible impact on emissions
608248	Monroe	MONROE- BRIDGE REPLACEMENT, M-26-004, RAYCROFT ROAD OVER DUNBAR BROOK	Not Listed	$ 679,388	n/a	Qualitative		No assumed impact/negligible impact on emissions
608783	Sunderland	SUNDERLAND- ROUNDABOUT CONSTRUCTION AT INTERSECTIONS OF ROUTE 116 AND ROUTE 47	Appendix	$ 2,682,380	13.4	Qualitative		Qualitative Decrease in Emissions
604818	Erving	ERVING- RECONSTRUCTION OF ROUTE 2 (ERVING CENTER) FROM MM 62 TO MM 63.6	Appendix	$ 16,397,300	10.3	Qualitative		Qualitative Decrease in Emissions
604959	Erving	ERVING- RECONSTRUCTION & IMPROVEMENTS ON ROUTE 2 (FARLEY AREA) FROM MM 60 TO MM 62	Appendix	$ 6,692,300	10	Qualitative		Qualitative Decrease in Emissions
605036	Gill-Greenfield	GILL- GREENFIELD- IMPROVEMENTS & UPGRADES ON ROUTE 2 FROM ADAMS RD/RTE 2A TO FRENCH KING BRIDGE - GILL/ERVING T.L.	Appendix	$ 2,665,406	9	Qualitative		Qualitative Decrease in Emissions
607504	Deerfield	DEERFIELD- RESURFACING & RELATED WORK ON ROUTE 5 & 10, FROM 265 FT. NORTH OF WELLS CROSS RD.TO THE DEERFIELD RIVER (3.0 MILES)	Appendix	$ 1,611,370	8.9	Qualitative		Qualitative Decrease in Emissions
604820	Northfield	NORTHFIELD- RECONSTRUCTION & IMPROVEMENTS ON MAIN STREET, ROUTES 10 & 63 (PHASE II)	Appendix	$ 1,302,000	6.8	Qualitative		Qualitative Decrease in Emissions
607325	Monroe	MONROE- RECONSTRUCTION & RELATED WORK ON READSBORO ROAD	Appendix	$ 2,000,000	5.2	Qualitative		No assumed impact/negligible impact on emissions
608165	Colrain	COLRAIN- RESURFACING AND RELATED WORK ON ROUTE 112 FROM MM 46.55 TO MM 48.06	Appendix	$ 1,900,000	3.8	Qualitative		No assumed impact/negligible impact on emissions

Appendices

2020 Regional Transportation Plan

Appendix A Public Outreach Efforts

The following is a list of stakeholders that were contacted as part of the public outreach effort in the development of this Regional Transportation Plan.

- All twenty-six Franklin County Town Administrators
- All twenty-six Franklin County Select Boards
- All twenty-six Franklin County Planning Boards
- All twenty-six Franklin County Highway Superintendents
- Greater Franklin County Comprehensive Economic Development Strategy Committee
- Franklin Regional Planning Board
- Franklin Regional Transit Authority
- Greening Greenfield
- Community Action, Inc.
- Franklin County Home Care Corporation
- Franklin County Regional Coordinating Council
- Franklin Land Trust
- Mt. Grace Land Conservation Trust
- Harvard Forest
- Connecticut River Watershed Council
- Baystate Franklin Medical Center
- Franklin County North Quabbin Community Coalition
- Windham Regional Commission (VT)
- Southwest Region Planning Commission (NH)
- Franklin County Regional Housing Redevelopment Authority
- Massachusetts Rehabilitation Commission
- Stavros
- F.M. Kuzmeskus
- Greenfield Planning Department
- Montague Planning Department
- YMCA
- Greenfield Community College
- Franklin County Energy Committees
- Congressman McGovern
- State Senator Jo Comerford
- State Senator Adam Hinds
- State Representative Natalie Blais
- State Representative Paul Mark
- MassDOT Districts 1 and 2
- Franklin County Transportation Planning Organization members
- Massachusetts Department of Conservation and Recreation
- Massachusetts Department of Housing and Community Development
- Massachusetts Department of Environmental Protection
- Massachusetts Executive Office of Energy and Environmental Affairs
- Massachusetts Historical Commission
- Federal Highway Administration

Appendix B Survey and Results

A survey was distributed electronically via Survey Monkey to gather public input. Both the survey and the results are attached here. A total of 235 surveys were completed.

2018-2019 Franklin County Regional Transportation Plan Survey

1. What is your PRIMARY mode of transportation?

○ Car

○ Walk

○ Bike

○ Public Transit Bus

○ Elder / Paratransit service

○ Carpool

○ Rideshare (Uber, Lyft, etc)

○ Other (please specify)

2. Please select ALL of the ways you travel to different destinations

☐ Car

☐ Walk

☐ Bike

☐ Public Transit Bus

☐ Elder / Paratransit service

☐ Carpool

☐ Taxi

☐ Peter Pan or Greyhound Bus

☐ Amtrak Train

☐ Rideshare (Uber, Lyft, etc)

☐ Other (please specify)

3. How far do you typically travel (round trip) on a daily basis?

○ Less than a mile

○ 1 to 10 miles

○ 11 to 20 miles

○ 21 to 30 miles

○ 31 to 40 miles

○ More than 40 miles

○ Other (please specify)

☐

4. Please rate your satisfaction with the following:

	Very Satisfied	Satisfied	Unsatisfied	Very Unsatisfied	No Opinion
Safety of roadways	○	○	○	○	○
Maintenance and condition of roadways	○	○	○	○	○
Availability and frequency of public transit bus services	○	○	○	○	○
How safe it is to walk in your community	○	○	○	○	○
How safe it is to bike in your community	○	○	○	○	○
Availability of alternatives to driving alone	○	○	○	○	○

5. Please select your transportation concerns for your community and/or the County

	High Concern	Medium Concern	Low Concern	No Opinion
Road and bridge conditions and maintenance	○	○	○	○
Bus transit availability	○	○	○	○
Safety	○	○	○	○
Availability of sidewalks and walking paths	○	○	○	○
Availability of bike lanes and off-road biking paths	○	○	○	○
Cost of transportation	○	○	○	○
Traffic speeds	○	○	○	○
Availability of passenger rail	○	○	○	○
Pollution from transportation	○	○	○	○

Other (please specify)

6. Please prioritize the transportation improvements you think are needed in your community and/or the County

	High Priority	Medium Priority	Low Priority	No Opinion
Improve road and bridge conditions	○	○	○	○
Improve road and intersection safety	○	○	○	○
Traffic calming in village centers	○	○	○	○
Increase bus transit frequency and extend hours	○	○	○	○
Expand bus transit service to new areas	○	○	○	○
Improve/add existing sidewalks	○	○	○	○
Add more bike lanes/bike facilities	○	○	○	○
Create or extend off-road biking and walking paths	○	○	○	○
Create additional park and ride lots	○	○	○	○
Establish commuter rail service between Greenfield and Springfield	○	○	○	○
Promote alternative transportation modes (walk, bike, transit, carpool, rideshare, bike share)	○	○	○	○

Other (please specify)

☐

7. How likely are you to use a rideshare service (Uber or Lyft) if it were available?

Not at all.		Sounds neat - I would probably try it.		Highly likely - can't wait!
☆	☆	☆	☆	☆

8. How likely are you to use a bike share service if it were available?

Not at all.		Sounds neat - I would probably try it.		Highly likely - can't wait!
☆	☆	☆	☆	☆

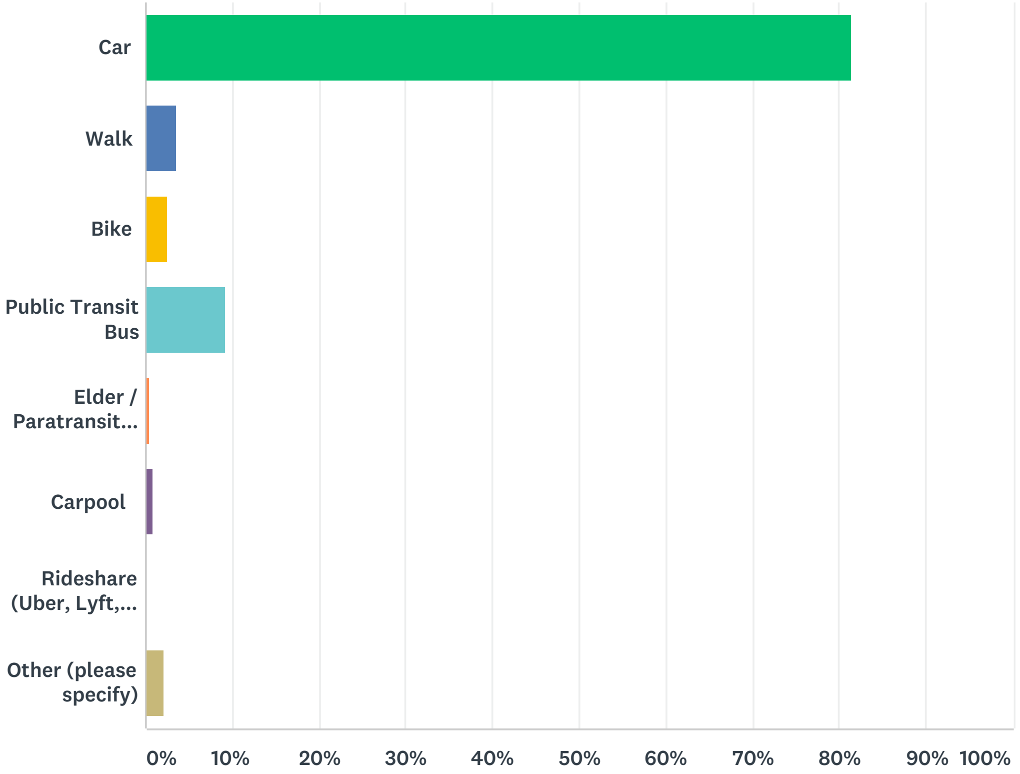
9. Are there any roads and/or intersections you avoid because you feel they are dangerous (speeding cars, difficulty in turning, close calls)? Give location & town please.

10. Are there any roads you avoid due to poor pavement or potholes? Give location and town please.

11. Please provide any additional comments or suggestions you have for improving transportation in Franklin County.

Q1 What is your PRIMARY mode of transportation?

Answered: 230 Skipped: 0

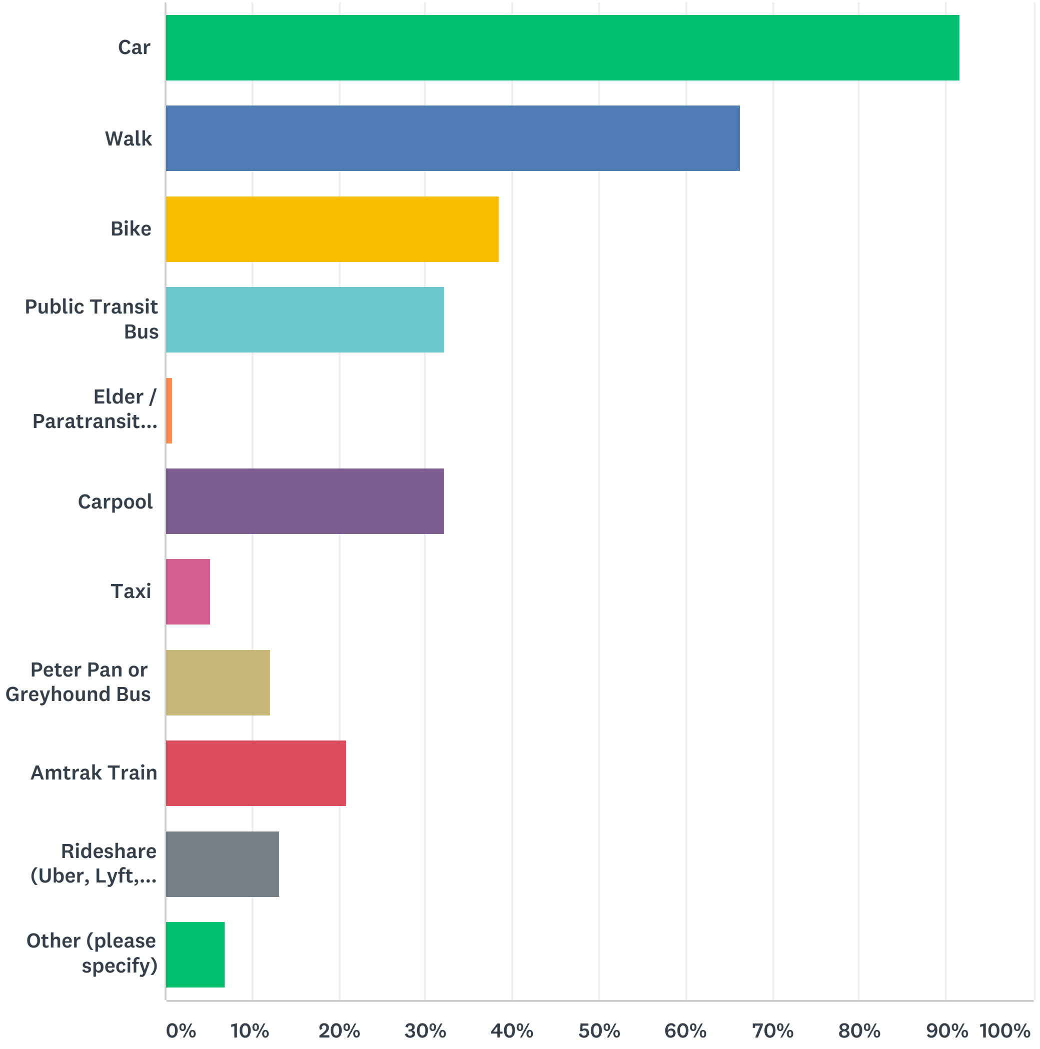


ANSWER CHOICES	RESPONSES	
Car	81.30%	187
Walk	3.48%	8
Bike	2.61%	6
Public Transit Bus	9.13%	21
Elder / Paratransit service	0.43%	1
Carpool	0.87%	2
Rideshare (Uber, Lyft, etc)	0.00%	0
Other (please specify)	2.17%	5
TOTAL		230

#	OTHER (PLEASE SPECIFY)	DATE
1	manual wheelchair	1/19/2019 7:16 AM
2	Amtrak	12/18/2018 4:29 PM
3	someone drives me	12/12/2018 12:15 PM
4	Friends car	12/12/2018 11:47 AM
5	Hey	11/20/2018 1:48 PM

Q2 Please select ALL of the ways you travel to different destinations

Answered: 229 Skipped: 1



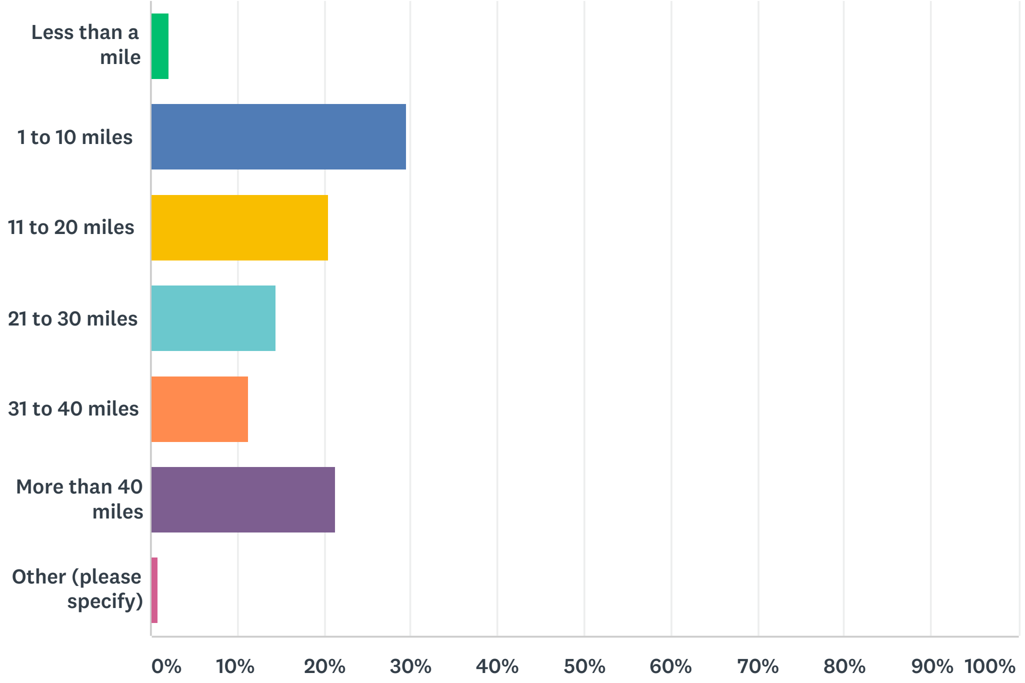
ANSWER CHOICES	RESPONSES	
Car	91.70%	210
Walk	66.38%	152
Bike	38.43%	88
Public Transit Bus	32.31%	74
Elder / Paratransit service	0.87%	2
Carpool	32.31%	74
Taxi	5.24%	12
Peter Pan or Greyhound Bus	12.23%	28
Amtrak Train	20.96%	48
Rideshare (Uber, Lyft, etc)	13.10%	30

Other (please specify)	6.99%	16
Total Respondents: 229		

#	OTHER (PLEASE SPECIFY)	DATE
1	manual wheelchair	1/19/2019 7:16 AM
2	Commuter Rail	1/10/2019 3:52 PM
3	MBTA train when going to Boston	1/9/2019 8:50 AM
4	Family	1/4/2019 2:59 PM
5	Friends	1/4/2019 2:47 PM
6	there is no more peter pan bus service	12/17/2018 10:30 PM
7	Hartford Line, & Metro North	12/17/2018 9:28 PM
8	mom and dad	12/13/2018 9:22 AM
9	Rides from friends	12/12/2018 12:19 PM
10	Commuter Train; Subway	12/12/2018 12:09 PM
11	Moped	12/12/2018 11:47 AM
12	Rollerblades	12/12/2018 11:10 AM
13	airline	12/12/2018 11:06 AM
14	Zipcar	11/25/2018 10:51 AM
15	MBTA	11/24/2018 7:51 AM
16	MBTA commuter rail (Fitchburg line)	11/20/2018 11:03 AM

Q3 How far do you typically travel (round trip) on a daily basis?

Answered: 230 Skipped: 0

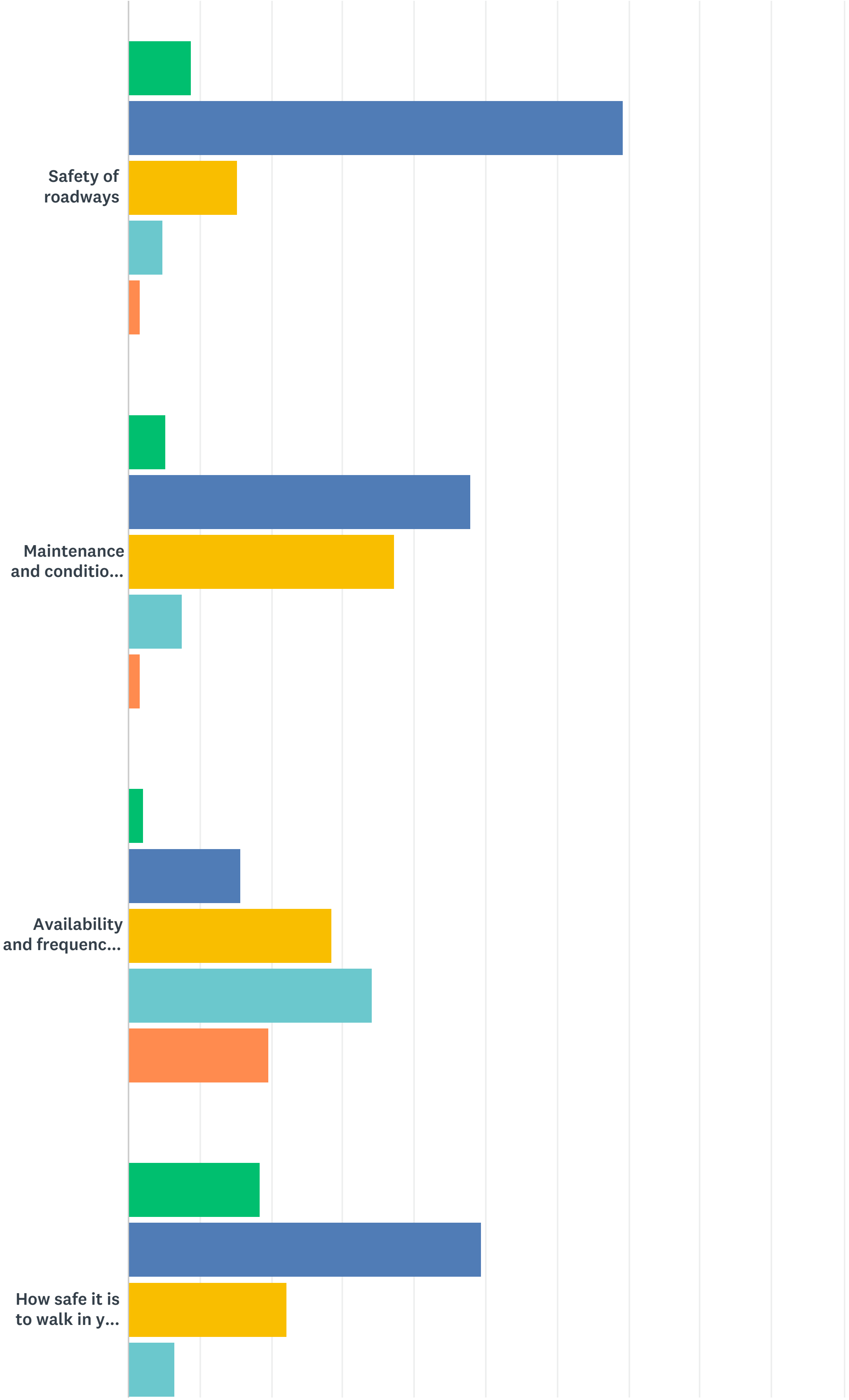


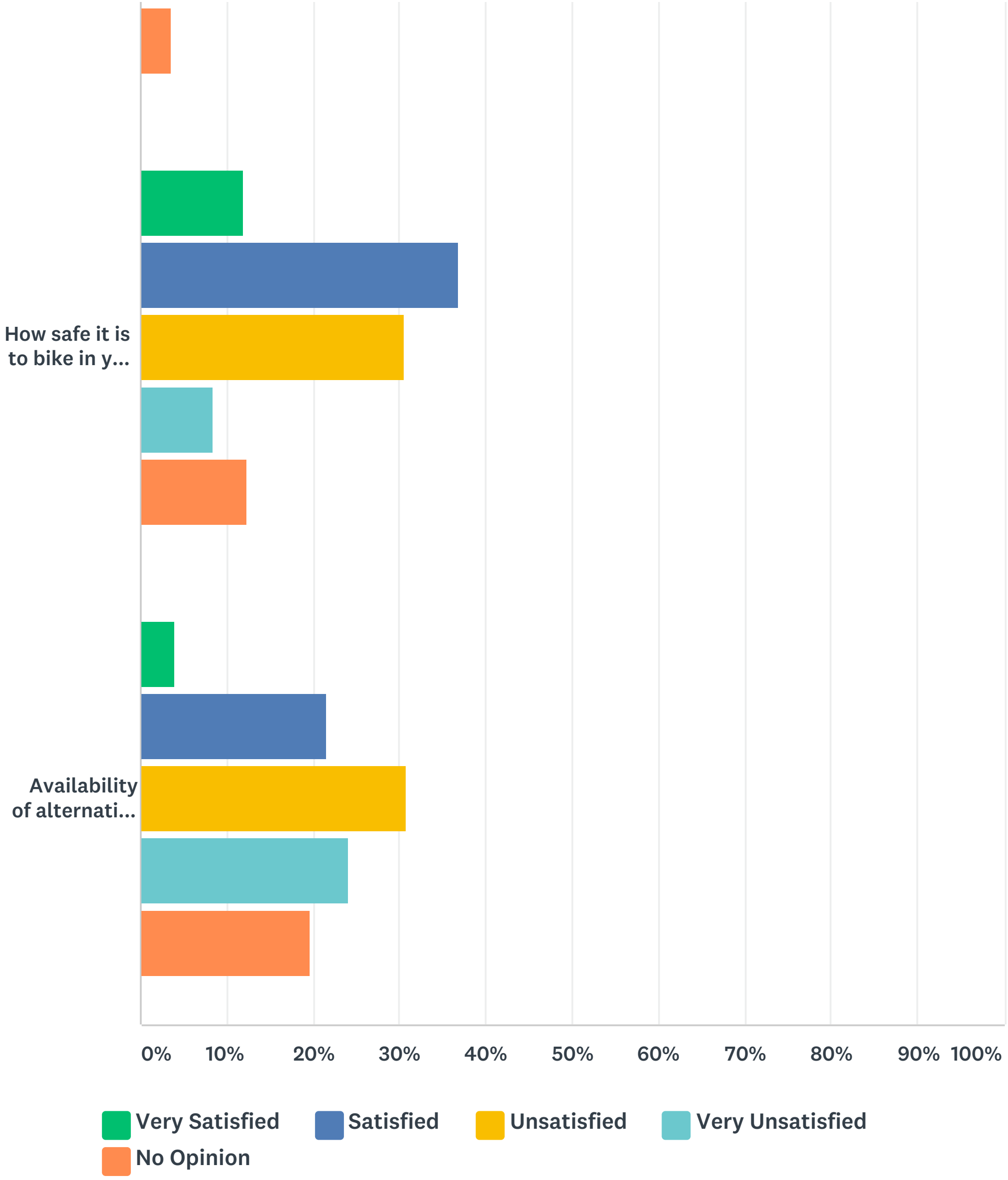
ANSWER CHOICES	RESPONSES	
Less than a mile	2.17%	5
1 to 10 miles	29.57%	68
11 to 20 miles	20.43%	47
21 to 30 miles	14.35%	33
31 to 40 miles	11.30%	26
More than 40 miles	21.30%	49
Other (please specify)	0.87%	2
TOTAL		230

#	OTHER (PLEASE SPECIFY)	DATE
1	I work from home but put on 15,000 miles driving for family events primarily from Wendell to Springfield once a week and to Brattleboro twice a week.	1/9/2019 8:50 AM
2	Do not travel daily	12/18/2018 4:29 PM

Q4 Please rate your satisfaction with the following:

Answered: 230 Skipped: 0

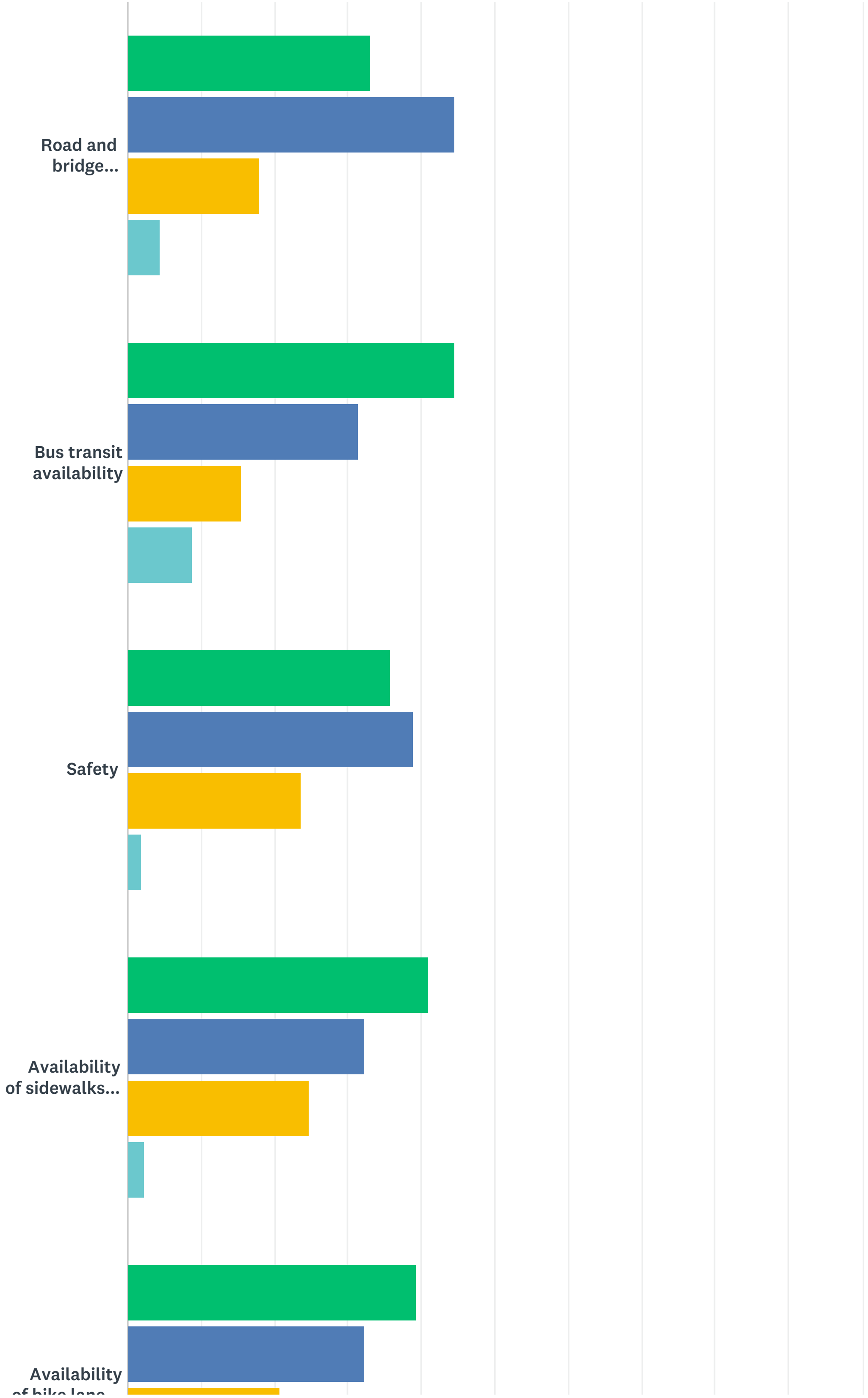


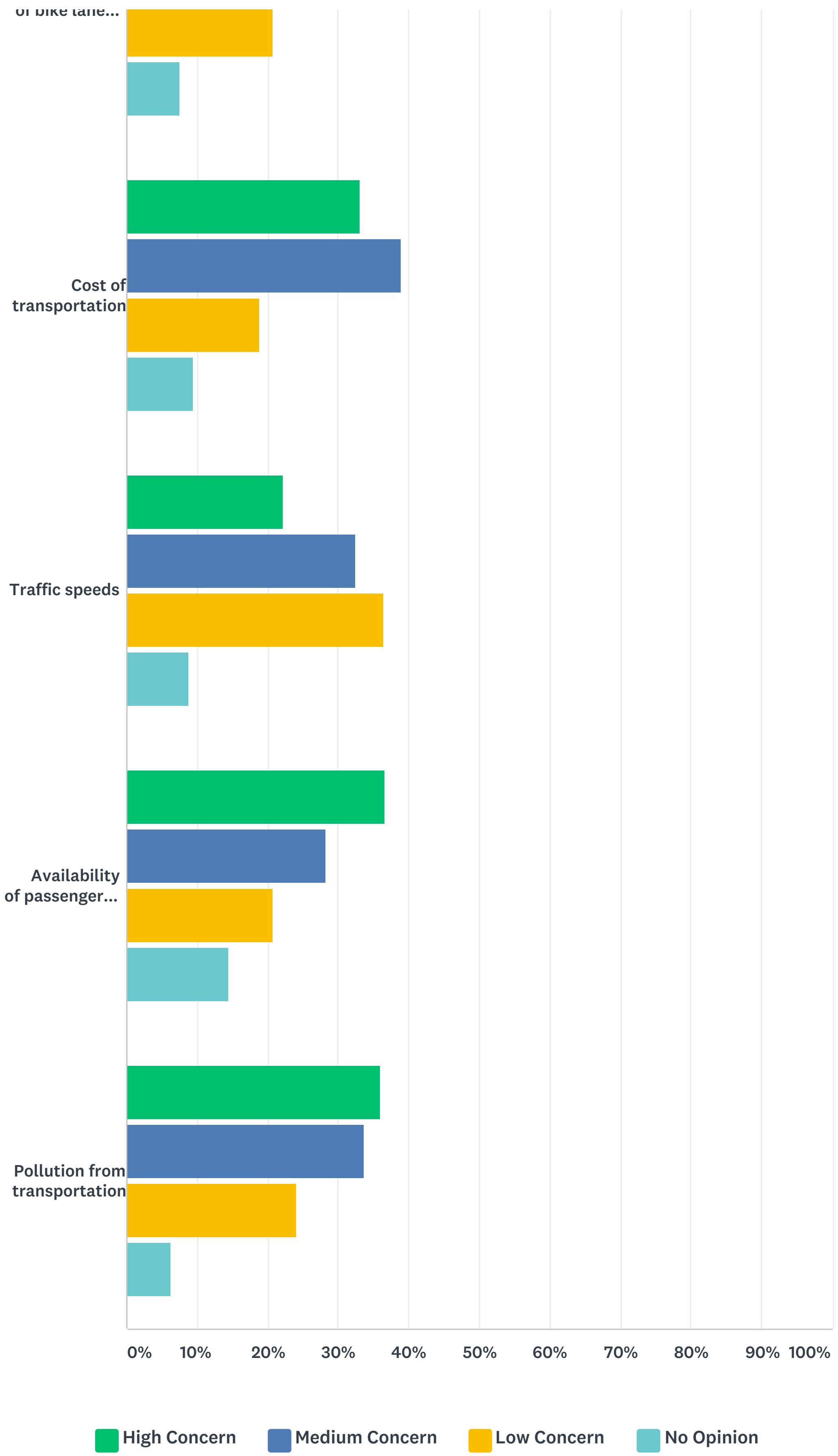


	VERY SATISFIED	SATISFIED	UNSATISFIED	VERY UNSATISFIED	NO OPINION	TOTAL
Safety of roadways	8.77% 20	69.30% 158	15.35% 35	4.82% 11	1.75% 4	228
Maintenance and condition of roadways	5.33% 12	48.00% 108	37.33% 84	7.56% 17	1.78% 4	225
Availability and frequency of public transit bus services	2.18% 5	15.72% 36	28.38% 65	34.06% 78	19.65% 45	229
How safe it is to walk in your community	18.34% 42	49.34% 113	22.27% 51	6.55% 15	3.49% 8	229
How safe it is to bike in your community	11.95% 27	36.73% 83	30.53% 69	8.41% 19	12.39% 28	226
Availability of alternatives to driving alone	3.95% 9	21.49% 49	30.70% 70	24.12% 55	19.74% 45	228

Q5 Please select your transportation concerns for your community and/or the County

Answered: 228 Skipped: 2





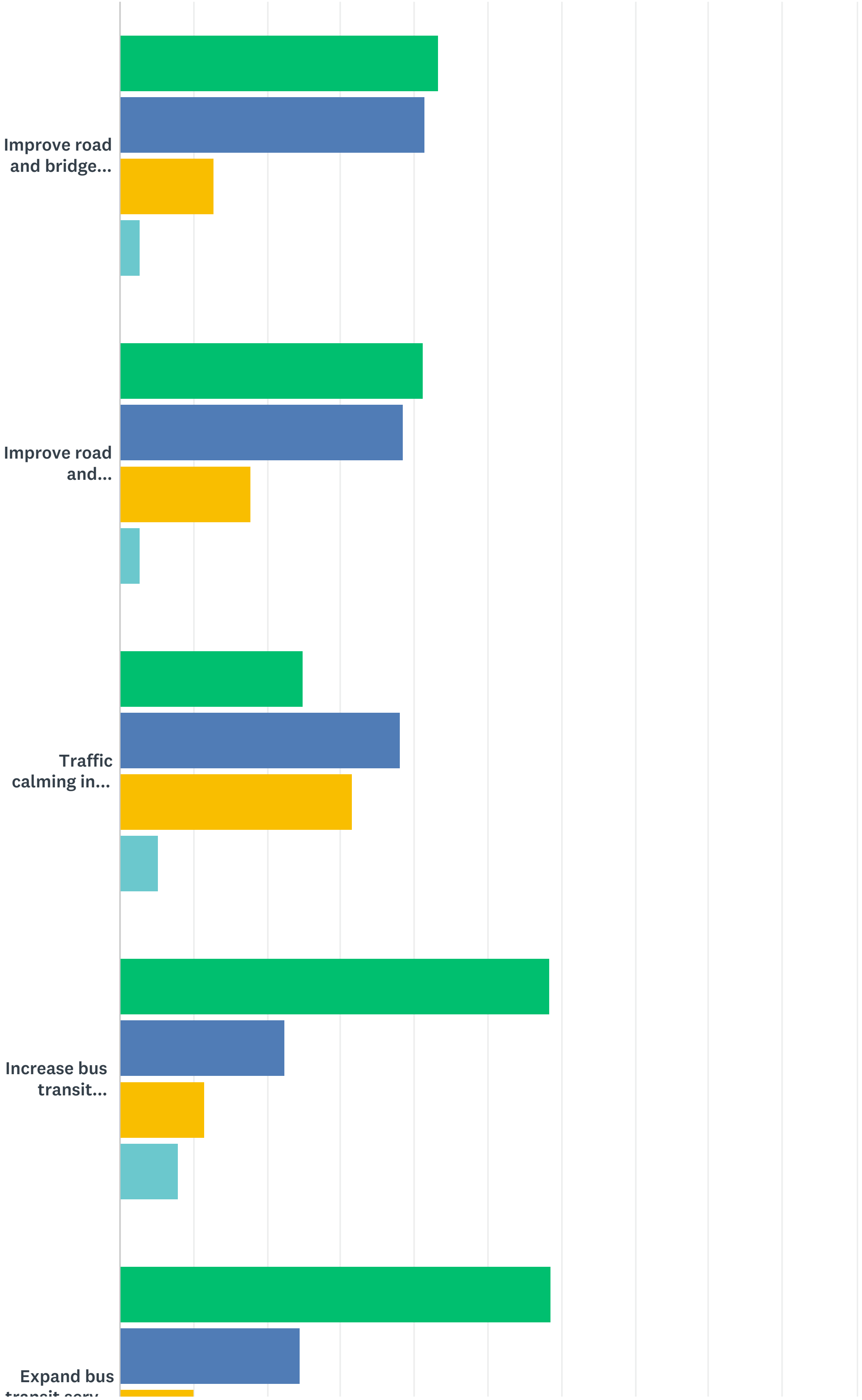
	HIGH CONCERN	MEDIUM CONCERN	LOW CONCERN	NO OPINION	TOTAL

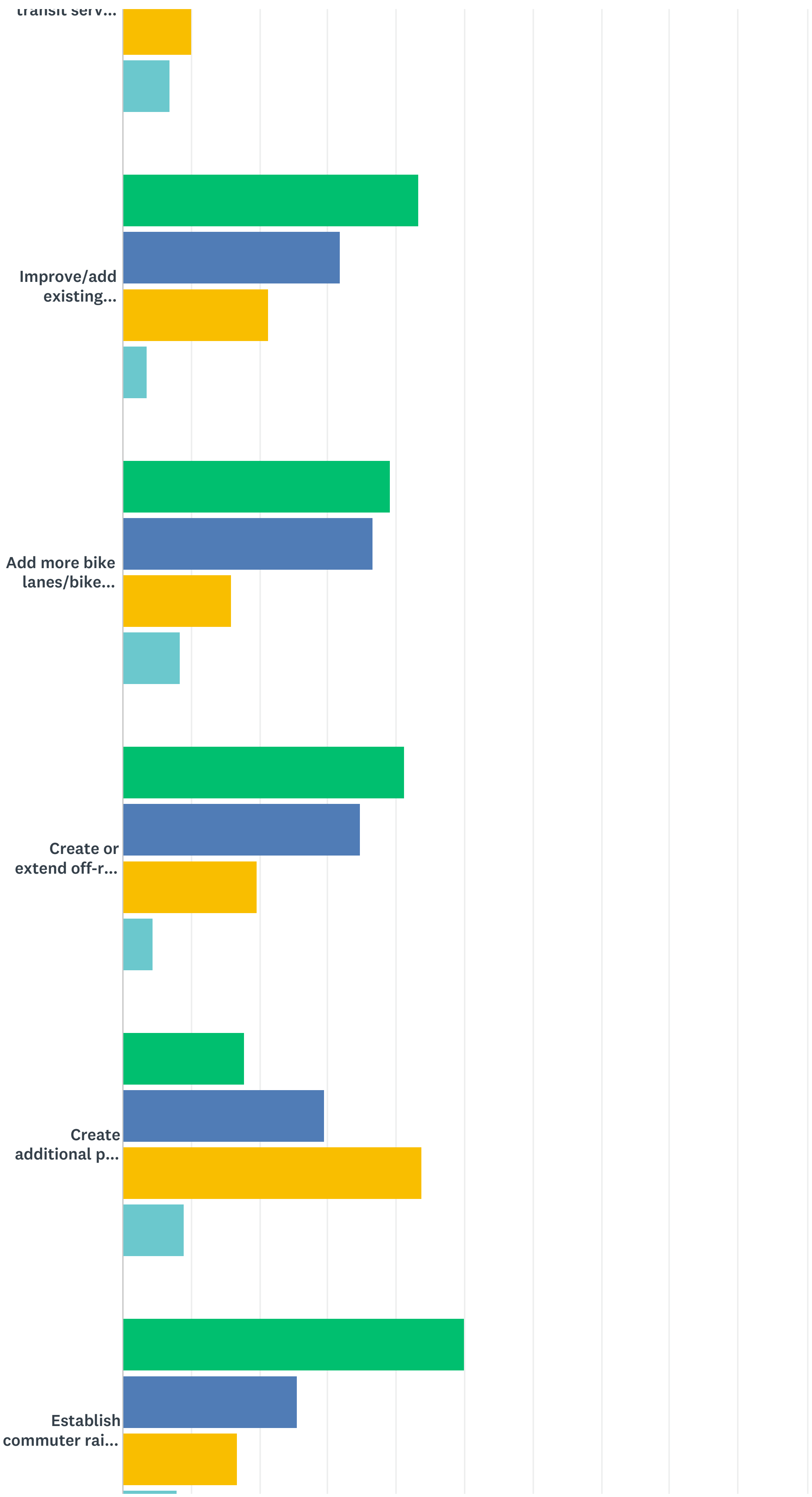
Road and bridge conditions and maintenance	33.04% 75	44.49% 101	18.06% 41	4.41% 10	227
Bus transit availability	44.49% 101	31.28% 71	15.42% 35	8.81% 20	227
Safety	35.71% 80	38.84% 87	23.66% 53	1.79% 4	224
Availability of sidewalks and walking paths	40.97% 93	32.16% 73	24.67% 56	2.20% 5	227
Availability of bike lanes and off-road biking paths	39.38% 89	32.30% 73	20.80% 47	7.52% 17	226
Cost of transportation	33.04% 74	38.84% 87	18.75% 42	9.38% 21	224
Traffic speeds	22.22% 50	32.44% 73	36.44% 82	8.89% 20	225
Availability of passenger rail	36.56% 83	28.19% 64	20.70% 47	14.54% 33	227
Pollution from transportation	36.00% 81	33.78% 76	24.00% 54	6.22% 14	225

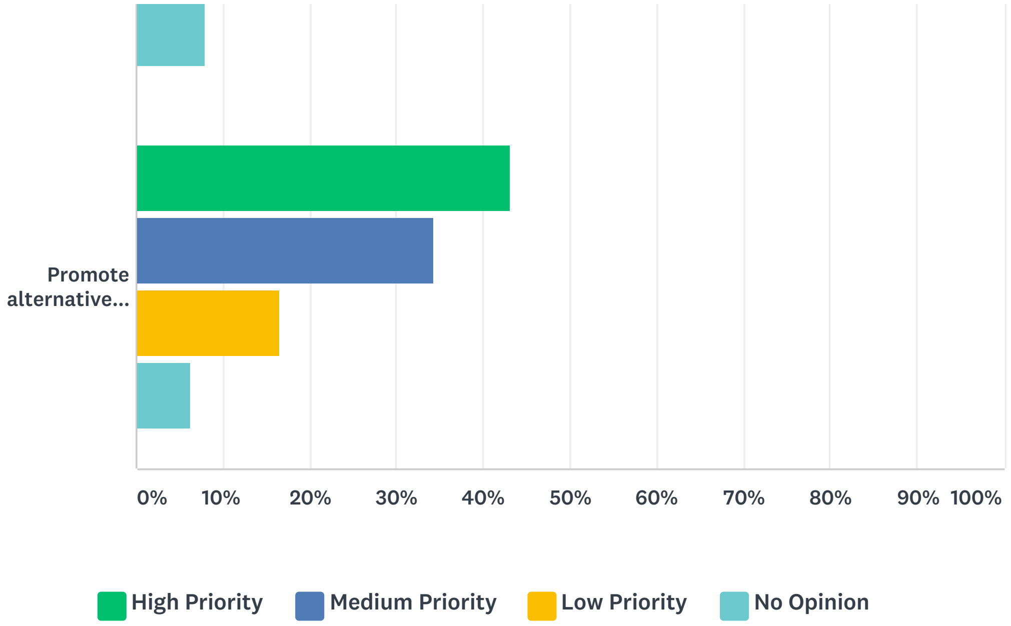
#	OTHER (PLEASE SPECIFY)	DATE
1	Public transport that includes wheelchair access with everyone else, not separate.	1/19/2019 7:16 AM
2	Area Greenway	1/10/2019 3:52 PM
3	THere is a lack of enforcement for stopping tailgating by speeding motorists when you drive the speed limit. Police faiul miserably at enforcing existing MV laws	1/4/2019 10:16 PM
4	Evenings and weekends	12/17/2018 7:27 AM
5	Too Much Automobile Congestion	12/14/2018 11:17 AM
6	Night and weekend public transit	12/13/2018 3:42 PM
7	It very much upsets me that lanes are closed on the highway for no reason all the time. I feel like it almost infringes upon my freedom to drive on the lane that is provided for me.	12/13/2018 1:40 PM
8	more routs from cliffside in sunderland to gcc!!!	12/13/2018 7:59 AM
9	Hate that there is only one taxi in town. Takes forever for them to answer the phone.	12/12/2018 2:36 PM
10	the amount of time it takes to repair roads. People need to learn the meaning of a yield sign	12/12/2018 11:23 AM
11	Would like more options for elder transportation. It is hard to get to medical appointments when you need to book the van three days out.	12/1/2018 9:01 AM
12	I want affordable public transit that is convenient and reliable - b/c I don't believe rail will ever be affordable, I ranked it lower, although I personally would like it.	11/25/2018 4:45 PM
13	we need trains	11/24/2018 10:22 AM
14	Traffic noise- high concern	11/23/2018 11:54 PM

Q6 Please prioritize the transportation improvements you think are needed in your community and/or the County

Answered: 230 Skipped: 0




transit serv...
Improve/add existing...
Add more bike lanes/bike...
Create or extend off-r...
Create additional p...
Establish commuter rai...



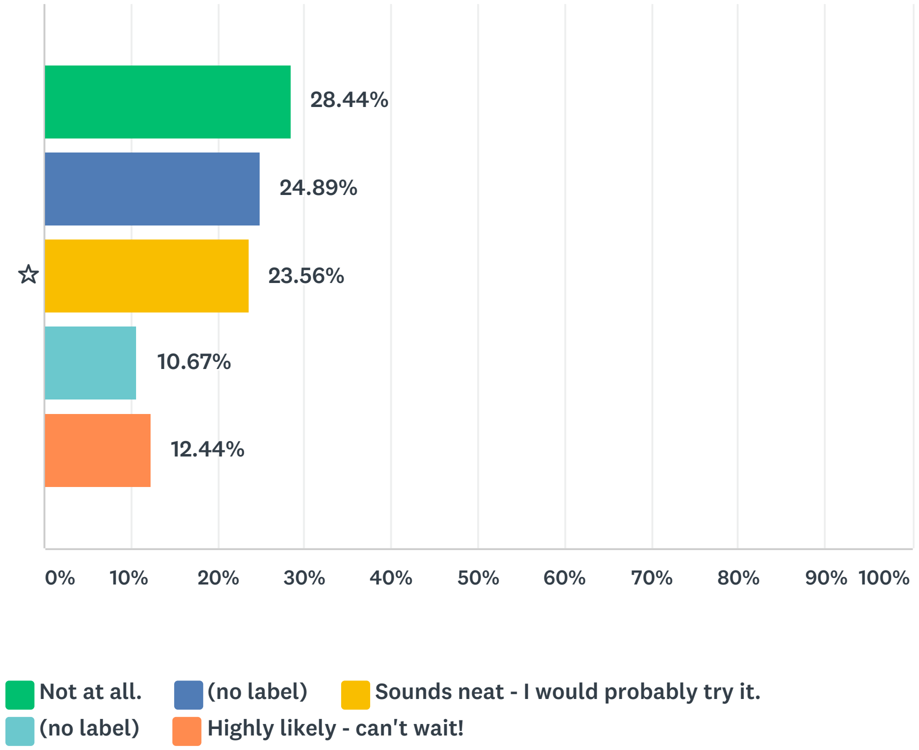
	HIGH PRIORITY	MEDIUM PRIORITY	LOW PRIORITY	NO OPINION	TOTAL
Improve road and bridge conditions	43.23% 99	41.48% 95	12.66% 29	2.62% 6	229
Improve road and intersection safety	41.15% 93	38.50% 87	17.70% 40	2.65% 6	226
Traffic calming in village centers	25.00% 57	38.16% 87	31.58% 72	5.26% 12	228
Increase bus transit frequency and extend hours	58.33% 133	22.37% 51	11.40% 26	7.89% 18	228
Expand bus transit service to new areas	58.52% 134	24.45% 56	10.04% 23	6.99% 16	229
Improve/add existing sidewalks	43.23% 99	31.88% 73	21.40% 49	3.49% 8	229
Add more bike lanes/bike facilities	39.21% 89	36.56% 83	15.86% 36	8.37% 19	227
Create or extend off-road biking and walking paths	41.23% 94	34.65% 79	19.74% 45	4.39% 10	228
Create additional park and ride lots	17.86% 40	29.46% 66	43.75% 98	8.93% 20	224
Establish commuter rail service between Greenfield and Springfield	50.00% 114	25.44% 58	16.67% 38	7.89% 18	228
Promote alternative transportation modes (walk, bike, transit, carpool, rideshare, bike share)	43.11% 97	34.22% 77	16.44% 37	6.22% 14	225

#	OTHER (PLEASE SPECIFY)	DATE
1	EAST WEST RAIL! (in a dream world this is not exclusive to Springfield-->Boston but would also include a path through northern central-western mass	1/22/2019 1:29 PM
2	Establish Commuter Rail between Greenfield-Orange to Wachusett	1/10/2019 3:52 PM
3	We need east-west rail to Boston, both via Springfield and Worcester and via Fitchburg and Waltham	1/9/2019 8:50 AM

4	Get the speeding under control or else all the rest is just lipstick on a pig. We need safer roads to commute on and that starts with less tailgating and "dumbcidents" -traffic mishaps caused by dumb drivers acting badly. Bicyclists are riding a suicide roadway every time the ride at the present time-especially when they ride the wrong way coming at traffic instead of riding with traffic.	1/4/2019 10:16 PM
5	we already have rail service established from greenfield to springfield, what we need is rail service from greenfield to boston. 2 in an 2 out a day	12/17/2018 10:30 PM
6	Call it regional rail and make it so it works for folks not doing a 9-5	12/17/2018 9:28 PM
7	More Alternatives For A 'Direct' Fixed Route Motorcoach Bus Service Between Both Greenfield, MA & Boston, MA	12/14/2018 11:17 AM
8	promote that non car stuff. save da erf	12/13/2018 1:40 PM
9	gcc to sunderland bus routes!!@!!	12/13/2018 7:59 AM
10	Commuter rail to Boston	12/12/2018 10:49 AM
11	Offer on demand or shuttle bus service	12/5/2018 5:46 PM
12	I live in Greenfield and work in Northampton. I would LOVE to commute via bus, but the timing is awful for that. I can't be the only person with this experience. Bike paths and no-car spaces are FAR more important for bike safety than additional on-road bike lanes.	12/4/2018 7:28 PM
13	improve existing sidewalks by planting more trees for shading pedestrians/bikers	11/25/2018 8:19 AM
14	We need frequent passenger trains to NY and Boston and North Hampton	11/24/2018 10:22 AM
15	Protected bike paths that lead somewhere instead of just randomly stopping. Lines on Wells St, Gfld,	11/23/2018 11:54 PM
16	Separate and protected bike infrastructure to protect us from cars. High Viz and unprotected lanes don't work.	11/20/2018 12:10 PM
17	Add a functional bus service between Greenfield and UMass that serves working commuters.	11/20/2018 11:03 AM

Q7 How likely are you to use a rideshare service (Uber or Lyft) if it were available?

Answered: 225 Skipped: 5



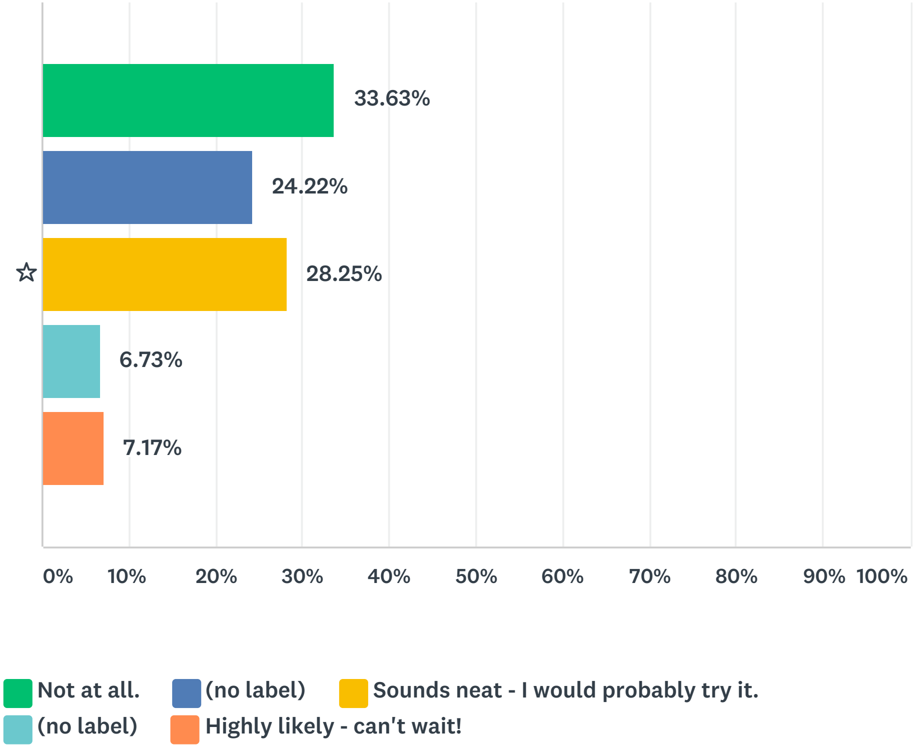
	NOT AT ALL. (1)	(NO LABEL) (2)	SOUNDS NEAT - I WOULD PROBABLY TRY IT. (3)	(NO LABEL) (4)	HIGHLY LIKELY - CAN'T WAIT! (5)	TOTAL	WEIGHTED AVERAGE
☆	28.44% 64	24.89% 56	23.56% 53	10.67% 24	12.44% 28	225	2.54

BASIC STATISTICS

Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	2.00	2.54	1.33

Q8 How likely are you to use a bike share service if it were available?

Answered: 223 Skipped: 7



	NOT AT ALL. (1)	(NO LABEL) (2)	SOUNDS NEAT - I WOULD PROBABLY TRY IT. (3)	(NO LABEL) (4)	HIGHLY LIKELY - CAN'T WAIT! (5)	TOTAL	WEIGHTED AVERAGE
☆	33.63% 75	24.22% 54	28.25% 63	6.73% 15	7.17% 16	223	2.30

BASIC STATISTICS				
Minimum 1.00	Maximum 5.00	Median 2.00	Mean 2.30	Standard Deviation 1.20

Q9 Are there any roads and/or intersections you avoid because you feel they are dangerous (speeding cars, difficulty in turning, close calls)? Give location & town please.

Answered: 103 Skipped: 127

#	RESPONSES	DATE
1	4 way stop, elm, north and south main, sugarloaf	1/17/2019 7:01 AM
2	Sugarloaf street: cars go too fast.	1/16/2019 9:21 PM
3	Tip of Scottie’s hill in Turners Falls. Cars do not stop for the cross walk	1/16/2019 7:31 AM
4	At the 4-way intersection of Rt 5/10 and Mill Village Rd and North Main Street	1/16/2019 7:28 AM
5	Rt. 16 Deerfield heading towards Amherst and taking a left onto Sugarloaf St. there should be a turn arrow. Also S. Deerfield center is a major problem for walkers and bikers.	1/16/2019 7:04 AM
6	There is a lot of speeding on Bernardston Road southbound around the curve prior to the Rte 2 W entrance. We have a school located here and there have been some close calls with the speed of cars going around the curve.	1/15/2019 4:40 PM
7	3rd Street and L Street in Turners Falls Avenue A and 1st Street in Turners Falls	1/15/2019 2:40 PM
8	Route five and 10 from Greenfield to Deerfield is my biking commute route. There is very little shoulder and it feels too dangerous often.	1/12/2019 10:51 AM
9	Rte 2 where the safety paddles are up-jersey barriers should be placed.	1/10/2019 3:52 PM
10	none	1/9/2019 8:50 AM
11	no.	1/8/2019 3:54 PM
12	Greenfield - Rte 5/10 near Jct. of Mill Street and Bank Row. (1) Duration of crossing light is way too brief. (2) Sidewalk across from Animal Crackers just disappears, making it treacherous for people walking north toward town. If a sidewalk extended all the way up to Bank Row toward the Transit Center, it would encourage more foot traffic from our end of town (Meridian St.)	1/7/2019 7:09 AM
13	River Rd and Rte. 2 in Erving	1/6/2019 11:42 PM
14	Route 2 east onto I-91 south in Greenfield. That left lane merge is really dangerous.	1/6/2019 10:30 PM
15	Deerfield, Rt. 5/10 and Mill Village at N. Main Street	1/4/2019 2:47 PM
16	Rt. 5/10 and Mill Village	1/4/2019 2:45 PM
17	Intersection at Sugarloaf and Thayer Street and Crestview Dr in South Deerfield	1/4/2019 2:43 PM
18	No	1/2/2019 11:29 AM
19	No	1/2/2019 11:13 AM
20	intersection of Main St., School St., Court Square in Montague Center is very dangerous for pedestrians - obscure sidewalk, not raised, blind curve,speeding drivers.	1/2/2019 11:07 AM
21	Route 2 on bike.	12/20/2018 11:12 AM
22	Route 2 between Greenfield and Shelburne Falls	12/18/2018 4:29 PM
23	the route 2 traffic circle in greenfield is a real zoo with lots of distracted drivers, speeding cars, general lack of courtesy. road rage city	12/17/2018 10:30 PM
24	Whately, MA & South Deerfield - Sugarloaf Ext does not have a sidewalk which makes it dangerous to walk up to South Deerfield village safely.	12/17/2018 9:28 PM
25	Gfld Colrain and Main. If with a driver	12/17/2018 7:27 AM

26	I try to avoid the main road through the center of Greenfield because it is difficult to turn onto side roads and to turn onto the main road from side roads. It also feels very tight to have to drive through. Also 1 Arch street in Greenfield goes underneath a train track, this makes it difficult to drive out of there because you can't see if there is a car coming out from underneath the bridge and when you are driving under it from either side you cant always tell if another car is coming.	12/15/2018 9:39 PM
27	Elm St. Gfld	12/14/2018 9:27 PM
28	The round about intersection between Colrain and College Drive in Greenfield, MA. Some people speed threw that sometimes causing crashes in the winter, and sometimes go the wrong way. A light at that intersection would be more beneficial.	12/14/2018 6:46 PM
29	Greenfield ma col rain st	12/14/2018 5:18 PM
30	Bank Row & Main Street, Greenfield, Massachusetts	12/14/2018 11:17 AM
31	Driving into millers falls coming from wendell state forest area. The skinny road after coming down the steap hill. Then also miller falls middle intersection	12/13/2018 6:39 PM
32	those left lane turns down main street in greenfield are kind of garbage.	12/13/2018 1:40 PM
33	intersections near Big Y greenfield	12/13/2018 12:34 PM
34	no	12/13/2018 10:55 AM
35	The intersection on Rt 2 to GCC	12/13/2018 10:45 AM
36	Leaving the Big Y plaza back onto rt 2	12/13/2018 9:41 AM
37	The red light on Bank Row and River Street lasts too long.	12/13/2018 8:57 AM
38	No	12/13/2018 8:48 AM
39	116 sunderland 248 amherst rd	12/13/2018 7:59 AM
40	Devens and Conway; devens and Elms; Devens and Wells... all of these intersections are difficult to see oncoming traffic	12/13/2018 5:09 AM
41	I'm sure there are plenty, but none that come to mind at the moment.	12/12/2018 3:48 PM
42	I'm sure there are plenty, but none that come to mind at the moment.	12/12/2018 3:47 PM
43	Bridge Rd and Rte 5 in Northampton. That intersection is ridiculous. In fact, from that intersection up to rte 9 is ridiculous since they added new lights. The traffic flow is terrible!	12/12/2018 2:56 PM
44	Dangerous for bikers - Colrain road between Nash's Mill Rd and the College - Greenfield Dangerous intersection- Colrain St & Elm St.	12/12/2018 2:36 PM
45	conway and main in greenfield, ma	12/12/2018 2:33 PM
46	No	12/12/2018 2:27 PM
47	the roadary	12/12/2018 2:26 PM
48	No	12/12/2018 2:08 PM
49	rotary in greenfield	12/12/2018 1:54 PM
50	There is an intersection on route 63 that is awful. Its a four way intersection, connects lake pleasant, Montague and route 63. If you are exiting the intersection from the Montague side its really hard turning left going towards Miller Falls. the area where cars stop should be closer to the road, making the left side more visible.	12/12/2018 1:08 PM
51	The road going over the bridge between Greenfield and Turners Falls, I avoid almost entirely. It looks and feels like it's going to collapse at any moment.	12/12/2018 1:00 PM
52	No	12/12/2018 12:59 PM
53	no	12/12/2018 12:58 PM
54	no	12/12/2018 12:54 PM
55	Northampton-R9 by the hospital towards Florence. No pedestrian cross walk.	12/12/2018 12:27 PM
56	nope	12/12/2018 12:21 PM
57	Colrain rd Greenfield	12/12/2018 12:19 PM

58	No	12/12/2018 12:12 PM
59	Easthampton - all roads	12/12/2018 12:09 PM
60	The Montague City Road Bridge in Turners Falls,MA	12/12/2018 12:05 PM
61	downtown northampton - main street	12/12/2018 12:01 PM
62	rte j2 intersection and colrain shelburne rd	12/12/2018 11:46 AM
63	Conway and Main St in Greenfield MA	12/12/2018 11:42 AM
64	Main and Federal Street turning left on bicycle in Greenfield	12/12/2018 11:36 AM
65	no	12/12/2018 11:27 AM
66	nope.	12/12/2018 11:21 AM
67	The roundabout by Friendly's in Greenfield, MA that are the on/off ramps to I-91. The road by the jail in Greenfield MA (Elm St) because it doesn't have sidewalks on both sides in multiple spots so I have to keep crossing the road. Cars speed on this road and people have been hit crossing the road, especially at night/early evening.	12/12/2018 11:10 AM
68	Intersection of Nash's Mill Road and Leyden Road in Greenfield	12/12/2018 11:06 AM
69	Intersection of Route 116 and Bull Hill Road in Sunderland. Making a left turn from Rt. 116 onto Bull Hill Road is often difficult, especially during high-traffic periods, and can feel risky. A left-turn lane or a traffic light is probably needed.	12/12/2018 11:01 AM
70	Turning left off of Route 2 anywhere in Shelburne. Cars go too fast, and there are no turning lanes available. For example, turning into Hagers Farm stand when heading east, or turning onto Colrain Shelburne Road when heading east.	12/12/2018 11:01 AM
71	An intersection near my house in Athol, Ma	12/12/2018 10:59 AM
72	Does this section assume you're avoiding them in a car? Would have been nice to specify. The roundabout outside of GCC. Cheapside Bridge on a bike. Every road is dangerous on a bike.	12/12/2018 10:58 AM
73	Leyden Road in Greenfield has almost no sidewalks. I have had multiple close calls as a pedestrian.	12/12/2018 10:56 AM
74	turners falls bridge	12/12/2018 10:55 AM
75	Deerfield street by golf course. Greenfield ma Rotary by highway in greenfield Meridian st and Petty plain intersection by green river school. Many close calls to being hit.	12/12/2018 10:53 AM
76	Leyden Rd Greenfield Needs sidewalk or bike lane.	12/12/2018 10:52 AM
77	All traffic circles.	12/12/2018 10:52 AM
78	The center of south deerfield, and just about every turn onto main street in Greenfield	12/12/2018 10:50 AM
79	Route 63 from Millers Falls to Amherst	12/12/2018 10:49 AM
80	Nash's Mill and Lyden Rd, Greenfield. There should be a stop light and traffic calming on Lyden Rd. You can not see south bound traffic coming off Nash's Mill and cars are typically going over the speed limit.	12/12/2018 10:48 AM
81	No.	12/12/2018 10:47 AM
82	erving. semb drive. People go into the exit of the dunkin donuts from route 2 at a high rate of speed and I often get almost hit when waiting to get onto route 2 from semb drive.	12/12/2018 10:46 AM
83	No	12/12/2018 10:46 AM
84	No	12/12/2018 10:45 AM
85	Many smaller towns have roadways and/or signage that are not up to current standards. The safety problems don't get resolved because small town simply don't have the money.	12/11/2018 3:33 PM
86	underpass on cheapside road in Greenfield, the second one coming from route 5, too narrow.	12/10/2018 9:21 AM
87	Mountain Rd curves near Highland Park, Greenfield. So unsafe for pedestrians.	12/9/2018 10:42 AM
88	Exit onto Rt. 2 going either direction from Greenfield Big Y parking lot--Serious! And, exit out of Pella and Valero/Shell gas station across from Big Y.	12/8/2018 3:11 PM

89	Elm/Conway intersection, Greenfield Elm/MohawkTrail, Greenfield Turners Falls Road, Greenfield	12/7/2018 7:58 AM
90	Can't avoid it, but the Rt. 2/Rt. 91 Rotary especially cars entering the rotary coming on Rt. from the west is seriously dangerous. Drivers frequently do not yield to rotary traffic even with directional signals used.	12/5/2018 5:46 PM
91	The intersection at the corner of High and Crescent in Greenfield is terrifying, because no one knows how or when to signal.	12/4/2018 7:28 PM
92	The intersection of Crescent, Main, and High st in Greenfield feels unsafe vacías it isn't cleuar to cars coming down crescent that the cars coming from other directions don't also have stop signs. It needs clearer signs, like "cross traffic does not stop"	11/25/2018 10:24 PM
93	No	11/25/2018 9:40 PM
94	Route 2 from Greenfield to Shelburne Falls	11/25/2018 4:45 PM
95	Greenfield: Davis and Silver Greenfield: Poor lighting and cross walk marking make crossing Main Street on foot dangerous Greenfield: Poor lighting and excessive speeds make Elm Street very dangerous for pedestrians Greenfield: Excessive speeds including students driving to the high school on Davis Street - dangerous Greenfield: Cleveland and Davis - No crosswalk striping on a primary walking route to the high school	11/25/2018 8:19 AM
96	narrow/no shoulder, unsafe for walking/biking, yet a highly used road: Turners Falls Road, Greenfield from Ct River to French King Hgwy	11/25/2018 7:46 AM
97	47 and 116 in Sunderland, light is not responsive to bike (often unavoidable, so have to rely on pedestrian signal, which stops traffic in all directions and that just annoys everyone - including me). Also avoid 47 between the Hadley bike path and Sunderland center during evening commute because of speeding cars and lack of shoulder and rough road (potholes and unevenly repaired potholes) - 2 out of 3 problems might be ok, but all 3 together make it dangerous.	11/24/2018 3:58 PM
98	Rt. 2 Shelburne and Greenfield	11/24/2018 10:22 AM
99	Allen St Bridge-Gfld (treacherous by bike), Federal St RR underpass by bike (dangerous, particularly uphill), Rt 2 is miserable to bike-all of it, Greenfield I-91 rotary is dangerous by bike and walking- I avoid it at all costs	11/23/2018 11:54 PM
100	Deerfield St, Greenfield MA Portions of Federal St, Greenfield MA The Bridge off of Montague City RD that links Greenfield and Turners Falls.	11/20/2018 12:35 PM
101	Rt 63 / Rt 47 / North Leverett Road interchange, Montague. North Leverett Road in general: speeding out of state cars. Locals rolling coal on bicycle riders. Rt 63 in general: dangerous to have high-speed cars with bikes riding on unprotected shoulder.	11/20/2018 12:10 PM
102	Elm St, Greenfield - 2 people have died since 2016 on this street alone. Crosswalks throughout Greenfield are poorly lit. Pedestrians and vulnerable road users are dying in Greenfield.	11/20/2018 11:03 AM
103	Biking on Federal Street, Greenfield feels scary to me, despite the bike lanes. Pedestrian crossings on Greenfield Main Street are lit very poorly at night.	11/20/2018 10:43 AM

Q10 Are there any roads you avoid due to poor pavement or potholes? Give location and town please.

Answered: 87 Skipped: 143

#	RESPONSES	DATE
1	116 Deerfield to Conway	1/16/2019 7:35 AM
2	General Pierce Bridge, Montague City 5th Street Bridge and Canal Road, bump on bridge	1/15/2019 2:40 PM
3	Russell St in Gfld	1/12/2019 10:51 AM
4	rural highways need reflective paint and reflectors in center and along the sides. rte 202 to Pelham and then down to Amherst- challenging in fog, rain and dark	1/10/2019 3:52 PM
5	none	1/9/2019 8:50 AM
6	no	1/8/2019 3:54 PM
7	Wisdom Way leading up from Mill Street looks like it's going to collapse any day. We end up driving around the fairgrounds and down to Laurel Street through a neighborhood to avoid it.	1/7/2019 7:09 AM
8	Bridges between exit 26 and 27 on I91 in Greenfield, especially northbound.	1/6/2019 10:30 PM
9	Bridge between Greenfield and Turners Falls	1/4/2019 2:48 PM
10	Deerfield Street in Greenfield	1/4/2019 2:45 PM
11	Yes	1/2/2019 11:29 AM
12	No	1/2/2019 11:13 AM
13	Middle section of Little Mohawk Road in Shelburne	12/18/2018 4:29 PM
14	buckland streets are terrible in terms of road surface, deerfield roads around old deerfield are very poor for biking because of broken road surface and potholes etc.	12/17/2018 10:30 PM
15	N/A	12/15/2018 9:39 PM
16	Shelburne Falls into Greenfield, I avoid Old Greenfield Road. Too many potholes!	12/14/2018 6:46 PM
17	Colrain st	12/14/2018 5:18 PM
18	Nope	12/13/2018 6:39 PM
19	anywhere in amherst	12/13/2018 1:40 PM
20	my own	12/13/2018 12:34 PM
21	Springfield...everywhere. Some holes on 91 North and South	12/13/2018 11:43 AM
22	no	12/13/2018 10:55 AM
23	Silver St in Greenfield	12/13/2018 10:45 AM
24	The bridge just before exit 27 going North.	12/13/2018 9:41 AM
25	Most roads in Northampton	12/13/2018 9:16 AM
26	The entire drive down Deerfield Street to Turner's Falls.	12/13/2018 8:57 AM
27	Federal Street Belchertown	12/13/2018 8:48 AM
28	no	12/13/2018 7:59 AM
29	Bridge over canal near former Southworth paper mill	12/12/2018 7:13 PM
30	There are plenty, can't think of specifics.	12/12/2018 3:48 PM
31	There are plenty, can't think of specifics.	12/12/2018 3:47 PM
32	Silver Street in Greenfield MA	12/12/2018 3:05 PM

33	Bridge Rd/Damon Rd in Northampton	12/12/2018 2:56 PM
34	Can't avoid it- Bridge over 91 - Colrain St-debris on side of Rd Colrain Rd from Nash's Mill to 4Rivers School- potholes bad pavement. - not wide enough	12/12/2018 2:36 PM
35	no	12/12/2018 2:33 PM
36	No	12/12/2018 2:27 PM
37	leyden road	12/12/2018 2:26 PM
38	GCC Parking Lot.	12/12/2018 2:12 PM
39	No	12/12/2018 2:08 PM
40	every road in greenfield and side roads in northampton	12/12/2018 1:54 PM
41	The GCC driveway bike way is terrible. There are huge unavoidable cracks the entire length of it.	12/12/2018 1:27 PM
42	No, most are pretty good.	12/12/2018 1:08 PM
43	Old Wendel Road in Northfield and Four Mile Brook Road in Northfield	12/12/2018 12:59 PM
44	no	12/12/2018 12:58 PM
45	Turners Falls road from turners to greenfield. Montague city road?	12/12/2018 12:54 PM
46	Western Ave	12/12/2018 12:54 PM
47	the highway	12/12/2018 12:53 PM
48	It's hard to avoid, honestly.	12/12/2018 12:35 PM
49	All over generally. Feel like I need to play hop scotch in my car.	12/12/2018 12:27 PM
50	nope	12/12/2018 12:21 PM
51	Na	12/12/2018 12:19 PM
52	No	12/12/2018 12:12 PM
53	No	12/12/2018 12:09 PM
54	Conway Road Shelburne Falls, MA	12/12/2018 12:05 PM
55	northampton, hadley, greenfield	12/12/2018 12:01 PM
56	most of colrain	12/12/2018 11:46 AM
57	No	12/12/2018 11:42 AM
58	Old Shelburne road.	12/12/2018 11:38 AM
59	No - on bicycle - I avoid the potholes, but then it's less safe riding in traffic - worst area is overpass over I-91 - Colrain Road in Greenfield	12/12/2018 11:36 AM
60	no	12/12/2018 11:27 AM
61	nope.	12/12/2018 11:21 AM
62	Almost all of the sidewalks in downtown Greenfield, MA are terrible. I mainly walk the area within Federal St, Main St, Allen St, and Greenfield Community College and although I cannot avoid going those routes, I often will walk in the road as opposed to the side walks because of poor side walk maintenance.	12/12/2018 11:10 AM
63	There are far too many potholes all over Greenfield. It is time the DPW properly repaired the roads.	12/12/2018 11:06 AM
64	Old Shelburne/Old Greenfield Road	12/12/2018 11:01 AM
65	Wisdom Way Greenfield. Again, are you assuming that we're driving? Chapman Street and Leyden Road in Greenfield is very dangerous on a bike, after the replacement of the gas lines.	12/12/2018 10:58 AM
66	Wisdom Way in Greenfield by the Green River Cemetery has dangerous sidewalks and a slanted road that makes traffic feel extremely close to pedestrians.	12/12/2018 10:56 AM
67	turners falls	12/12/2018 10:55 AM

68	Cheepside road bridge ruins car. Potholes along the whole road. Meridian street going up hill before green river school, a lot of pot holes. Colrain rd leaving gcc headed to bjs potholes	12/12/2018 10:53 AM
69	Rte 91 north between Greenfield and exit 26. Over passes/bridges are in horrendous shape.	12/12/2018 10:51 AM
70	N/A	12/12/2018 10:50 AM
71	No	12/12/2018 10:47 AM
72	route 91 going north right before the 2 east exit	12/12/2018 10:46 AM
73	No	12/12/2018 10:46 AM
74	No	12/12/2018 10:45 AM
75	Bridge between Turners Falls and Greenfield, the one down Poet Seat	12/10/2018 9:21 AM
76	Montague bridges between Greenfield.	12/9/2018 10:42 AM
77	Most paved roads in Heath have serious drainage issues. Burrington Road and others are breaking up.	12/8/2018 3:11 PM
78	Going under the railroad from Washington Street to the connector to Hope street in Greenfield.	12/4/2018 7:28 PM
79	Bridges to Turners Falls from Greenfield. Southern end of James st by the intersection of Hope st.	11/25/2018 10:24 PM
80	No	11/25/2018 9:40 PM
81	The White bridge and the General Pierce bridge in Montague	11/25/2018 4:45 PM
82	Greenfield: Cheapside bridge	11/25/2018 8:19 AM
83	Old Greenfield Rd in Greenfield	11/24/2018 6:47 PM
84	It's fine for driving, but I avoid it when I commute by bike: 47 between bike path and Sunderland center - the "shoulder" is often torn up.	11/24/2018 3:58 PM
85	The Bridge off of Montague City RD that links Greenfield and Turners Falls.	11/20/2018 12:35 PM
86	General Pierce Bridge + Montague City Road + Cheapside Street, Greenfield. Rt. 5 at Greenfield / Deerfield line (bridge going over Deerfield River).	11/20/2018 12:10 PM
87	I-91 between exit 26 & exit 27. The bridges are falling apart. General Pierce bridge - also falling apart and essentially impassable.	11/20/2018 11:03 AM

Q11 Please provide any additional comments or suggestions you have for improving transportation in Franklin County.

Answered: 96 Skipped: 134

#	RESPONSES	DATE
1	More evening and weekend routes for the FRTA buses!	1/23/2019 9:46 AM
2	I didn't hear about the public comment sessions in time or I would have gone. I've been working in workforce development over the last couple years, currently at Community Action. Almost every time I meet with people the subject of transportation throughout Franklin county comes up. It comes up with clients, who can't get across the county for appointments or recreation, and it comes up with colleagues when discussing barriers for Franklin county residents. For me the issue is most glaring in the ways limited transportation shrinks someone's job opportunities. Our current bus system lacks the ability to offer an alternative to commuting by car. I would love to see it expand to connect employers and populations centers aligned with shift times. I would love to see more connections between FRTA and PVTA/MRTA. Bus access over the weekend is both vital and missing in our community. I want to see greater advocacy for Western Mass, particularly our transportation system, at the state level. I want to see East/West rail connect Western Mass and Eastern Mass, and I want to see a bus route between Greenfield and Springfield down 91 with no transfers. I'm happy to talk about any of this more, and can be reached at rebecbanna@gmail.com. Thanks! Rebecca Bannasch	1/22/2019 1:29 PM
3	We need more hours of service, esp on the weekend, and it has to be inclusive. The para-transit model only serves to segregate people.	1/19/2019 7:16 AM
4	I think the biggest priority is to have alternatives to solo commuting. That could be improved bus service, trains, bike infrastructure or for most of us some combination of the three.	1/17/2019 6:39 AM
5	Downtown Deerfield could be more of a draw for locals if traffic was slowed down and we had a more pedestrian friendly village.	1/16/2019 9:21 PM
6	Need cheaper more accessible transportation for disabled people and seniors.	1/16/2019 7:35 AM
7	Thank you for asking for feedback!	1/16/2019 7:04 AM
8	I don’t let my kids bike because there are no sidewalks on busy streets	1/15/2019 10:52 PM
9	Many of the bridges in Turners Falls and Montague Center are in bad need of repair.	1/15/2019 7:27 PM
10	PLEASE expand bus service. There's low ridership because the schedules are not compatible with work and other travel hours. I would take the bus to work if I could.	1/15/2019 4:40 PM
11	Please prioritize fighting climate change in all future transportation planning.	1/15/2019 2:40 PM
12	Sidewalk around schools Bridges Potholes Bike saftey Public transportation Uber/lift	1/15/2019 2:34 PM
13	Bike lane from South Deerfield to Greenfield. More frequent buses from South Deerfield to Greenfield	1/12/2019 10:51 AM
14	more night time safety features on roads is necessary for example mountain rd between greenfield and turners and cheapside from rte 5 and 10 to montague are very dark at night and dividing lines and road shoulders are virtually undetectable.	1/11/2019 10:23 PM
15	get the western mass delegation to work together with citizens, businesses, towns and FRCOG on a regional transportation vision, plan and funding and execution	1/10/2019 3:52 PM
16	Multiple rail trips daily north and south of Greenfield. Multiple rail trips daily east and west of Greenfield.	1/9/2019 8:15 AM
17	I work at the state building on Dwight Street in Springfield (since 2013). I can look out my window to see Union Station. I drive every day from Northfield and have been waiting for a commuter line to happen. I have heard about the pilot program starting in June 2019 and am interested. I pay $60 per month to park in Springfield. I would like to know what the rates will be to park in Greenfield and ride on the train so that I can determine whether or not I can afford it. My concern is how I would park if I sometimes took my car instead of the train. Thank you.	1/8/2019 3:54 PM

18	We just moved to Greenfield (summer of 2017) and chose to live within walking distance of town. Haven't yet had an occasion to take public transportation.	1/7/2019 7:09 AM
19	On demand traffic lights wherever appropriate. This reduces emissions and wasting fuels	1/6/2019 11:42 PM
20	Our roadways are awash with speeding cars and a lack of existing speed laws being enforced. It seems as though the duty of traffic enforcement has been shunned and drivers know it. And, these drivers act out knowing that they can tailgate endlessly without any repercussions as well as speed through most areas at will. The Mass Chiefs of Police and State Police have failed on this time after time -and it has shown as accidents have risen. If anyone doubts this, drive the limit and see how close cars are constantly found in relation to safe driver's rear bumpers.	1/4/2019 10:16 PM
21	Need bus routes	1/4/2019 2:59 PM
22	Having bus lines go across borders	1/4/2019 2:55 PM
23	Need more bus routes	1/4/2019 2:51 PM
24	More bus	1/2/2019 11:29 AM
25	I want more bus service on the weekend, Greenfield to turners falls.	1/2/2019 11:28 AM
26	More bus service, Saturday service, bike share is a very interesting idea, also a carpool app like "Wheelie" used on some college campuses (UVM) might avail people to ridesharing for short or long distances	1/2/2019 11:07 AM
27	Reopen Brook Road between Shelburne and Greenfield ASAP! It was used by perhaps 1,000 cars a day until closed for political reasons (who pays for a culvert?)	12/18/2018 4:29 PM
28	we need better signage, esp stop signs, on the rural roads, better visibility road markings including state highways. because of a large increase in traffic on route 2 some thought needs to be given to providing traffic lights especially from 8am to 7pm for several of the streets that have high traffic counts between greenfield and charlemont.	12/17/2018 10:30 PM
29	The state should buy the Boston & Maine and hook Greenfield back into Boston via rail. Make it so that sign coming into Erving isn't a joke Umass kids tell each other but a truth about why they moved there.	12/17/2018 9:28 PM
30	Please repaint the white and yellow lines on the roads!!! Many are faded and impossible to see on a dark rainy night. It is a real safety concern.	12/17/2018 3:30 PM
31	Buses very hot in winter and very cold in summer....depending on driver FRTA operates to benefit company vs driver hours/riders.	12/17/2018 7:27 AM
32	Buses not helpful if round trip doesn't really exist. Example: 20 minutes to go from Fosters to GCC, but an hour to return?	12/14/2018 9:27 PM
33	If there were Electric or Hybrid vehicles that Uber or Lyft offered in Franklin County I feel like it would be beneficial not only for students but for the environment as well.	12/14/2018 6:46 PM
34	The Massachusetts Regional Express Motorcoach Bus (MAX), TrueNorth Transit Group, LLC	12/14/2018 11:17 AM
35	Need more frequent buses between Turners Falls and Greenfield. In general, need it to be easier to get to the Olver Center from surrounding areas. Need better options for connecting between FRTA and other transit systems such as PVTA. Need buses on nights and weekends; people are unable to work due to transportation limitations!	12/13/2018 3:42 PM
36	more bike trails pls	12/13/2018 1:40 PM
37	I wish there was public transportation from Northfield to Greenfield!	12/13/2018 10:45 AM
38	The population is so low in this county, that I dont have any legitimate complaints about traffic. I would greatly appreciate better public transportation options getting to and from the other counties however. Perhaps novelty ideas like a 'party bus' that would provide transport to and from events at Greenfield venues (eg: Hawks and Reed, etc...), might drum up more intereset and awareness in the transit systems normal schedules and routes. Outside county dollars might be more likely to come in as well.	12/13/2018 9:41 AM
39	Weekend bus service.	12/13/2018 8:57 AM
40	PLEASE START ROUTES FROM CLIFFSIDE IN SUNDERLAND TO GCC , AT LEAST 4 THROUGH OUT THE DAY!!!!!! DIRECT	12/13/2018 7:59 AM

41	I would like to see a flashing light system on crosswalks downtown. It's very difficult to see in the late afternoon, evening time pedestrian dressed in darker apparel. A motion activated flashing light would be helpful for the safety of pedestrians.	12/13/2018 5:09 AM
42	I wish you put digital speed limit signs (like the one in Leverett/MA) on the highway that crossing the towns to reduce the cars and trucks noise, like route 202 /New salem, Orange and Athol Just ask the people who live there about the cars noises Thank you	12/12/2018 8:20 PM
43	We need more than one bus that goes through this area. Also extended times and weekend travel are a must. These bus companies (especially FRTA) need to get with the times, no one works 9-5 jobs anymore. There needs to be adaptation, because everyone is hurting with of the lack of it.	12/12/2018 3:48 PM
44	We need more than one bus that goes through this area. Also extended times and weekend travel are a must. These bus companies (especially FRTA) need to get with the times, no one works 9-5 jobs anymore. There needs to be adaptation, because everyone is hurting with of the lack of it.	12/12/2018 3:47 PM
45	we need more buses	12/12/2018 2:33 PM
46	FILL UP THE POTHOLES	12/12/2018 2:26 PM
47	Additional bus service.	12/12/2018 2:12 PM
48	weekend buses to northampton!	12/12/2018 1:01 PM
49	Thank you for your speedy changes to public transportation. Communication for public transportation. General information on where to get tickets etc.	12/12/2018 12:27 PM
50	none	12/12/2018 12:21 PM
51	Na	12/12/2018 12:19 PM
52	None	12/12/2018 12:12 PM
53	Keep up the good effort	12/12/2018 12:09 PM
54	bus to greenfield from colrain	12/12/2018 11:46 AM
55	More buses at a cheaper rate or even free to students.	12/12/2018 11:42 AM
56	Driving from Noho to Gfield is 25 minutes and the bus takes an hour! Together with the vanishingly rare frequency of the bus route this pushes people into their cars.	12/12/2018 11:38 AM
57	It would be safer to bike here if the shoulders were swept, as bikes could more safely ride there instead of the road	12/12/2018 11:36 AM
58	none	12/12/2018 11:27 AM
59	I would love to commute by bus or train from Whately to Greenfield, but I can't because the bus is infrequent and the train doesn't stop in Whately.	12/12/2018 11:24 AM
60	Having people walk down the side of Route 2 to the bowling alley is NOT safe! especially walking form old state road, why cant the bus go down this road? It just loops right back to route 2.	12/12/2018 11:16 AM
61	I'm not sure if this will help with improving transportation, but as a walker, it's tough to walk on the side walks because of holes, unevenness, missing side walks and bushes that residents grow at the edge of their lawns that take up more than half the side-walks.	12/12/2018 11:10 AM
62	Expanded bus service through some rural towns would be very helpful—residents there have no mass transit options for commuting.	12/12/2018 11:01 AM
63	Fix the bridge on the Brook Road! And the bridges on Old Shelburne/Old Greenfield Road.	12/12/2018 11:01 AM
64	Extending the hours for the bus system	12/12/2018 10:59 AM
65	Bus service will continue to fail as long as we provide ridiculous, circuitous routes operating only a few times per day. An hour and fifteen minutes to get from Greenfield to Northampton? Really? Might as well walk. I feel strongly that transit should run from town center to town center, and frequently enough that it's actually useful (including saturday service). FRTA right now appears commited to providing an extremely low level of service over a broad area. They should focus instead on creating routes that are useful and sustainable.	12/12/2018 10:58 AM
66	NA	12/12/2018 10:55 AM
67	More hours/ go to more towns Provide more ride shares or safer taxi service.	12/12/2018 10:53 AM

68	Public Transportation on Weekends, at least Saturdays.	12/12/2018 10:52 AM
69	More buses, longer routes	12/12/2018 10:50 AM
70	it can be really hard to get out of the hill towns due to infrequency of the frta bus systems	12/12/2018 10:46 AM
71	Additional lighting at dangerous intersections would be helpful.	12/11/2018 3:33 PM
72	Badly need rail service from Boston to Greenfield or Northampton	12/11/2018 3:27 PM
73	more subsidy from the government or municipal entities. thank you	12/10/2018 9:21 AM
74	A commuter train would be nice, but for the price, I'd rather see improvements—repairs, more pediestrian friendly, reduced speeds, better parking design— to the existing infrastructure. I can't ride my bike on low traffic roads without damaging a tire. I have people walk in my lawn and in my flowerbeds to avoid the speeding traffic in the road, as there is no sidewalk.	12/9/2018 10:42 AM
75	Develop a regional road maintenance plan including the hill towns that results in towns sharing technical assistance, long range maintenance planning and support, cooperative purchasing of highway materials, paving contracts, and equipment. Significantly increase Chapter 90 and/or other sources of state and federal funding for highway construction and maintenance to offset the needs of towns to fund education and other municipal services--the smaller towns (especially those wth little or no industry or businesses) are taxing their residents to the max.	12/8/2018 3:11 PM
76	I am most concerned about distracted driving - more so than intersection safety. Also the new lights at River/Mohawk Trail, Greenfield - flashing arrow is confusing - also pedestrian crossing at Main/Federal - wait is too long; also need safe crossing halfway down Bank Row, especially with the new garage.	12/7/2018 7:58 AM
77	Park and ride area at Athol and Orange for those of us who commute to Greenfield, please.	12/5/2018 4:40 PM
78	More frequent routes to Northampton/Easthampton and Saturday service.	12/5/2018 3:35 PM
79	Places to park bikes in downtown Greenfield that are not parking meters. More traffic circles/rotaries instead of stop signs (https://en.wikipedia.org/wiki/Roundabout#Smaller,_small_or_mini-_roundabouts). Please please commuter-viable bus service between Greenfield and Northampton.Dedicated bike lanes painted on downtown streets.	12/4/2018 7:28 PM
80	As an elder on a fixed income, I'm grateful for the medical van, but it is still impossible to get to medical appointments that are urgently needed. Could there be some kind of option that doesn't need to be booked three days in advance? This is a hardship at times. Thank you.	12/1/2018 9:01 AM
81	A commuter rail to Springfield and Brattleboro would make a huge difference!! Also more bike lanes more better. Thank you!	11/25/2018 10:24 PM
82	More and better bus options. Folks without cars have few options for public transportation, which becomes a logistical nightmare when they may have to do something that should be simple, like get from an appointment at a doctor's office to a pharmacy to collect a presecription, then back to a job. Having a viable rail option would be phenomenal, not only as a commuter option, but to use it for travle elsewhere. Taking a train to Boston via Springfield should be a no-brainer. But it also opens up a continent of possibilities.	11/25/2018 9:40 PM
83	I want safer ways for people to get between downtown Turners and Greenfield -- walking or biking over Canada Hill is not a good option. Even a designated place on either side where people could wait for someone to give them a lift over the hill would be better than the current reality.	11/25/2018 4:45 PM
84	Shouldn't you ask what town I'm in? Greenfield's needs are different from New Salem's.	11/25/2018 12:46 PM
85	Make planting trees a mandatory part of each and every road and sidewalk project, instead of just a nice-to-have idea or an after thought.	11/25/2018 8:19 AM
86	Weekend bus routes!	11/25/2018 7:46 AM
87	With an adult child that will never be able to drive, we will probably have to relocate to an area with better transportation for her independence.	11/24/2018 6:47 PM
88	In western Franklin County, public transportation effectively does not exist. Look at the FRTA schedule on weekdays: the last bus leaves the jumped up "transportation center" in Greenfield at 5:00 pm. How can a person have a job and use public transit? Answer: they can't. It can't be done. This is a sick joke of a system that might as well be shut down.	11/24/2018 7:51 AM

89	I would love to have speed humps (like those in Noho on rt 5 south) ALL over Gfld. Speed enforcement is NOT a priority in Gfld- this needs to change. Cell phone use while driving is also rampant and this is not policed either.	11/23/2018 11:54 PM
90	I want to use public transportation to get to work from Greenfield to UMass, but that is not feasible with such limited service. I also wish there was high speed rail, both to Boston and to Springfield.	11/21/2018 4:14 PM
91	I would use a commuter rail to go back and forth from Greenfield and Northampton and Springfield. This would not be for work but for pleasure.	11/20/2018 12:35 PM
92	Please talk to cyclists about actual cycling infrastructure- the national trend is to paint some sharrows / paint in a bike line which cars then ignore. Having separate, protected, bike infrastructure increases ridership- focus on fixing the infrastructure and not asking cyclists to wear brighter clothing (both times car drivers hit me I was wearing ample high viz- they claimed they didn't see me). There is also no real safe way for pedestrians and bikes to from Montague/TF to Greenfield: the diversion through Cheapside discourages people who aren't spandex cyclists. Also: there are no good public transit, or safe bicycle corridors (Rt 5/10 and 116 are not safe), etc... between Greenfield and employment centers to the south (Amherst, Northampton, Springfield, Hartford) or even to the north (Brattleboro). This is a huge problem and is one of the reasons I have yet to buy a house in Franklin County.	11/20/2018 12:10 PM
93	I would trake a train to work In Northampton every day if it was available	11/20/2018 11:52 AM
94	I would so happily take the bus to and from work (Shelburne Falls to Greenfield and back) if the schedule fit better with my work schedule.	11/20/2018 11:05 AM
95	The FRTA is an abomination. Service needs are totally misaligned vs. community needs and the service sees few riders because of it. FRTA says "we need more people to use the bus" - but the services FRTA provides don't encourage ridership.	11/20/2018 11:03 AM
96	PLEASE improve the bus service. I would use the bus nights and weekends if it actually existed. I would take the bus to work if it were just extended a half a mile. I would take the bus to Turners or Shelburne Falls on the weekends if one existed. This should be the TOP priority for the region. We have new regional representation in the House and Senate. Let's get this done.	11/20/2018 10:43 AM

Appendix C Public Comments

Once the FRCOG staff had completed a draft of the 2020 Regional Transportation Plan, public input was sought from a variety of stakeholders, as well as those required by FAST Act, during a 21-day public review and comment period between June 28, 2019 and July 18, 2019. Two public meetings were held on July 16, 2019 – one at 12:00 PM and the second at 5:00 PM – to directly obtain public input regarding the draft RTP. Both meetings were held at the centralized and accessible location of the John W. Olver Transit Center in Greenfield.

As part of this outreach, the FRCOG received comments on the draft RTP. Those comments that were received were reviewed and incorporated, as appropriate, into the RTP. The following are the comments received during the public comment period.

Comments Received during the Final Public Meetings

- Need Saturday transit service to help isolated low income residents (especially those at Leyden Woods) access Greenfield Farmer's Market and HIP/SNAP benefits offered there.
- The region needs to better market transit to middle-income households to those who do not need to use transit.
- The issue of the increasing size of the elder population will pose a problem for transportation.
- GCC has the issue of students not being able to travel to campus for classes – need to look for solutions.
- There are many residents, especially older and disabled, who cannot access medical appointments because of lack of transportation.

Comments Received during the Public Comment Period

- I have found one error at the top of Chapter 7 page 6: Currently, service in the corridor is provided by Amtrak via the Lake Shore Limited, which runs two round trips per day connecting Boston and Chicago. Should say "which runs one round trip per day." Joe Kurland, Colrain Board of Selectman
- MassDOT (see letter on next page)
- Jeff Singleton, Alternate Chair to the FRTA Board for the Town of Montague (see letter on next pages)

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

July 8, 2019

Linda Dunlavy, Executive Director
Franklin Regional Council of Governments
12 Olive Street
Greenfield, MA 01301

Dear Ms. Dunlavy:

The Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning (OTP) has reviewed the draft Federal Fiscal Year (FFY) 2020 Regional Transportation Plan (RTP) released by the Franklin County Transportation Planning Organization (TPO) on June 25, 2019. The following MassDOT comments include both general guidance and specific comments on the MPO's 3C planning process related to the content of this document as released for public review. Please note the following comments specific to the information contained in the MPO's draft FFY 2020 RTP.

Chapter 2 - Public Participation & Title VI Activities

- Page 3: Please more thoroughly describe how the public participation results impacted and/or validated the final recommendations contained within the RTP.

Chapter 3 - Performance Measures

- Where applicable and possible, please identify which data sources will be used to assess progress toward achieving regional performance measures.

Chapter 5 - Roads and Bridges

- Pages 15 - 17: Please indicate whether any public comments were received on the roadway improvement projects highlighted in this section.
- Page 18: Within the recommendations section, please discuss how the analysis presented in Table 5-9, "Pavement Management Repair Strategy Cost Estimates," could inform recommendations related to pavement management.

Chapter 6 - Freight Transport

- Page 2: Please rotate Figure 6-1, "Massachusetts Freight Corridors."
- Page 5: Please provide examples of the "issues related to the safe and efficient movement of freight by trucks on Route 2 West" that have been identified.
- Pages 5 - 6: Within the "Challenges to Freight Trucking" section, please indicate the source of each of the challenges identified and whether a project has been initiated with MassDOT or municipalities to address any of these challenges.

Chapter 8 - Airports

- Pages 14 - 15: Within the recommendations section, please specify which entities are responsible for implementation.

Chapter 10 - Bicycle and Pedestrian Facilities

- Please indicate which proposed projects have been identified as providing access to or being within Environmental Justice areas in Franklin County.
- Page 7: Please specify the town in which the Schell Bridge is located to be consistent with the descriptions of other proposed future bikeway projects.
- Page 23: Within the Safe Routes to School (SRTS) section, please revise the statement that SRTS members are qualified to receive assistance in improving infrastructure within “one mile of their school” to “two miles of their school.”

Chapter 13 – Safety & Security

- Page 6: To the extent possible, please indicate planning efforts, including road safety audits, that have taken place or are planned at the intersections listed in Table 13-13. Additionally, within the recommendations section of this chapter, please indicate if any future work is recommended for intersections on this list.

Chapter 14 - Air Quality Conformity Determination

- Please ensure that the final document contains the results of the greenhouse gas modeling currently underway.

Chapter 16 - Financial Constraint

- Page 1: Please clarify that regional target funds distributed under the Massachusetts Association of Regional Planning Agencies (MARPA) formula are federal funds.
- Page 1: Please revise the sentence, “MassDOT projections assumed funding levels increasing by a 4 percent annual inflation rate after the year 2020” to indicate that a 2.2 percent increase over the FAST Act authorization was used to derive financial projections.
- Page 3: Please revise “Table 6-2” to “Table 6-3” in the last sentence on the section entitled “Funding Available for Transit Projects.”
- Page 6: Please ensure the final document contains the final list of projects that is referenced on this page.

Please contact me at (857) 368-8865 or Derek Krevat at (857) 368-8868 if you have any questions.

Sincerely,

David Mohler
Executive Director
Office of Transportation Planning

Cc: Jeffrey McEwen, Division Administrator, Federal Highway Administration
Peter Butler, Acting Regional Administrator, Federal Transit Administration
Francisca Heming, District 1 Highway Director
Peter Cavicchi, District 2 Highway Director
Astrid Glynn, Rail and Transit Division Administrator

From: Jeff Singleton

To: FRCOG

Re: Comments on public transit section of 2020 Regional Transit plan July 18, 2019

I just want to amplify the points I made about the regional transit portion of the 2019.

Expanding the Base of "Rural" Public Transit

While I agree with most of the proposals in FRCOG report, especially the need for weekend FRTA service, I also feel the plan should support the need to expand the base of the public transit system to middle class people who may well want to reduce their car use in the coming years. The base of the transit system is very heavily weighted to low income/elderly people without cars. While this is a crucial constituency for public transit, it is extremely unbalanced out here which is one reason the ridership is so low.

Low ridership is often explained in the context of the problems of rural public transit, which of course means much lower population densities for the regional system to serve. But the term "rural" is a bit misleading. Not everyone out here lives on farms or in the woods. There are significant small population centers, often either former small industrial villages (Turners Falls, Orange, Greenfield, Shelburne Falls, Pittsfield, North Adams), colleges (UMass, Amherst College, Smith, Williams, the Community Colleges), bedroom communities (Montague Center, Sunderland), shopping centers and industrial parks. It is the connections to these places that the regional transit system tends to serve. They produce both the low income base of the transit system and the middle class car culture that tends not to use the system.

So…. I think that over the next twenty years we should make a major effort to expand the ridership base. There are strong economic, political and environmental justifications for making this a priority. A broader ridership base dovetails with our economic goals, particularly in Greenfield and Montague but perhaps the smaller towns; expanded ridership by people with cars would reduce the use of fossil fuels; an expanded ridership base would expand the revenue base of the system, including encouraging more state aid, and potentially reduce the stigma associated with public transit.

Expanding the ridership base will probably mean better publicity and outreach to a broader constituency about the options currently available. I believe the current level of service – for example to Amherst via Sunderland – is not widely understood not only by potential riders but by businesses and landlords. We might consider targeting families who choose to own only one car, which I suspect is a much larger constituency for public transit in the metropolitan areas.

Route 23: Greenfield/Montague to Amherst via Sunderland

As I did at the meeting on Monday, I would like to tie the above argument about broadening the base of the transit system to increasing ridership on Route 23, which essentially connects Greenfield/Montague to Amherst via Sunderland. To me the traditionally low ridership on this route and the limited number of round trips until recently reflects the narrow constituency of the transit system as a whole.

Until the recent pilot to expand the number of trips to 6 on this route, we essentially had four round trips servicing the largest employer in the region (UMass) and a graduate/undergraduate stdent head count of nearly 25,000 students. By contrast there have been over 20 round trips traveling between

Greenfield a Turners Falls. To me this is unbalanced. It both reflects and encourages the narrow base of the system.

Significant progress has been made in improving access to Amherst and reducing the cost of the ride. Recently the FRTA added two mid-day trips as a “pilot”. So Route 23 now has six round trips.But a six month pilot is not sufficient time to increase awareness of the new options available and encourage potential renters to move north from the Amherst area. Furthermore, serious redundancies in the system undermine the ridership on route 23 Longer routes like 23, 31 and 32 need to rely on servicing residents who take shorter segments of the route to maintain healthy ridership numbers.

Impact of Redundancies on Ridership Data and Funding.

Several years ago the FRTA decided to expand service between Turners Falls and Greenfield by expanding Route 24, an internal Greenfield Route that has Greenfield Community College as a key destination. The FRTA expanded the route to travel from the Olver Transit Center down High St to Avenue A In Turners Falls. This new route improves access to GCC from Turners by transporting students to the college without having to make a transfer and improves access to Greenfield by those living in the patch, a neighborhood across from the 11th St bridge in Turners.

However, the new High St extension, which runs 11 times a day, takes the same route between Greenfield and Turners as Route 23. And some of these round trips run at almost the same time. For example there is a widely used 4:00 PM Route 24 bus between the Olver Center and Turners which runs ten minutes before Route 23, taking ridership away from the latter There are several other examples of this kind of redundancy.

This redundancy, which reduces ridership on Route 23, is particularly problematic because the state, in its recent plan for Regional Transit Authorities, is requiring that RTAs use ridership data or” metrics” to analyze performance the performance of particular routes

Furthermore it is not cost effective. 17 total round trips (Route 23 plus 24) on High St. between Greenfield and Turners is overkill for a small, relatively poor transit authority, particularly when there are also 7 round trips that connect these towns via the Orange Route (31). The High St portion of Route 24 adds approximately 5 hours of service daily to the FRTA Budget by my calculation. Reducing or eliminating this cost would pay for the additional two trips in the Route pilot and there would still be six round trips serving High St.

Greenfield has indicated that it does not want to spend the extra money for the pilot expansion of Route 23. But by my calculation the the High Street extension to Route 24 ,adds approximately 2.5 hours of service per day on Greenfield’s assessment. I calculate that eliminating or reducing this level of service would pay for Greenfield’s share of the Route 23 pilot.

Other Redundancies

There are other redundancies in the system that service Montague, in my opinion a product of the same flawed process that produced the Route 24 extension. Another last minute Route decision that seems heavily driven by the needs of the management company was the decision to keep Route 22, an internal Route in Montague from Avenue A in Turners Falls to the industrial park. This Route was driven by the perceived need for more service to the regional housing authority, which had recently moved to the industrial park.

However Route 22 was created with any discussion of the number and timing of existing bus routes that already served the new housing authority location (Route 23 and Route 31). As a result we now have three buses serving the housing authority at almost the same time at the beginning of the day.

Again the configuration seems to be heavily influenced by the needs of the management company. I understand that all the routes in the system are connected and need to be considered in the light of the union contract and efficiency (drivers not sitting around for an hour between routes). But the various pieces of the puzzle need to be on the table at the beginning of the process, not scrambled together at the end in a way that leads to redundant service, not to mention routes being sprung on key "stakeholders" without time for public input.

I would urge the FRTA to seriously consider making the two additional routes in the Route 23 Pilot permanent, or at least extending the pilot for at least two years, and paying for this by eliminating the Route 24 extension. We should also revisit the Route 22. I feel it should either be eliminated or changed to reduce redundancies with routes 21.

Weekend Service

I think we need a more effective lobbying strategy to achieve weekend service. It seems that every year it is or is not "in the budget" for some reason or another. It is not at all clear what it means to have weekend service "in the budget," how it is supposed to get there, who proposes it, how it gets taken out and so forth. All I know is that for some unknown reason or another the FRTA happens to be the only transit authority in the state without weekend service, which to me is absurd.

It is not clear how we get from point A to point B. Does it mean our reps are lobbying for a specific increase of federal and state aid to the FRTA to help cover the cost of weekend service? If so, what is that amount? What do our reps think the best strategy is for getting that amoun?. Maybe the dynamic is different. If so, what is it?

Do we need some sort of special committee that meets on a regular basis that works on a strategy and get regional stakeholders involved?

Conclusion:

1. Make expanding the ridership base of public transit in the region as a goal. Improve publicity and outreach.
2. Reduce redundancies in the system. Improve the planning process that produces redundancies in the system by placing all options on the table at the beginning of the planning process.
3. Extend the pilot expansion of Route 23 for at least two years and finance it by eliminating the High St section of Route 24. Need public discussion of this that includes Route 24 riders.
4. Develop a more detailed strategy for achieving weekend service in conjunction with our state reps and FRCOG. Consider establishing a committee to implement this. I believe we should begin by funding a half-day Saturday service.

Appendix D Glossary of Acronyms

AASHTO: American Assoc. of State Highway & Transportation Officials

ABP: Accelerated Bridge Program

ADA: Americans with Disabilities Act

ADT: Average Daily Traffic

AFC: Automated Fare Collection

AICP: American Institute of Certified Planners

ANR: Approval Not Required

ATR: Automatic Traffic Recorder

BMS: Bridge Management System

CAAA: Clean Air Act Amendments of 1990

CDBG: Community Development Block Grant

CFR: Code of Federal Regulations

CIP: Capital Improvement Program

CMAQ: Congestion Mitigation and Air Quality

CMP: Congestion Management Process

CO: Carbon Monoxide

COA: Council On Aging

CPS: Corridor Planning Study

CSS: Context Sensitive Solutions

DCR: Department of Conservation and Recreation

DDS: Department of Developmental Services

DEP: Department of Environmental Protection

DHCD: Department of Housing & Community Development

DLTA: District Local Technical Assistance

DOT: Department of Transportation

DPH: Department of Public Health

DTA: Division of Transitional Assistance

EDA: Economic Development Administration

EIR: Environmental Impact Report

EIS: Environmental Impact Statement

EJ: Environmental Justice

ENF: Environmental Notification Form

EOEEA: Executive Office of Energy and Environmental Affairs

EOT: Executive Office of Transportation

EPA: Environmental Protection Agency

EPDO: Equivalent Property Damage Only

ESS: Elder Shopper Service

FAA: Federal Aviation Administration

FAST Act: Fixing America’s Surface Transportation Act

FCTPO: Franklin County Regional Transportation Planning Organization

FHWA: Federal Highway Administration

FO: Functionally Obsolete

FRCOG: Franklin Regional Council of Governments

FRA: Federal Railroad Administration

FTA: Federal Transit Administration

GIS: Geographic Information System

GPS: Global Positioning System

HAZMAT: Hazardous Material

HCM: Highway Capacity Manual

HOV: High Occupancy Vehicle

HPMS: Highway Performance Monitoring System

HPP: High Priority Project

HSIP: Highway Safety Improvement Program

I&M: Inspection & Maintenance

IM: Interstate Maintenance

ITE: Institute of Transportation Engineers

ITS: Intelligent Transportation Systems

ISTEA: Intermodal Surface Transportation Efficiency Act of 1991

JARC: Job Access Reverse Commute

LOS: Level of Service

LPA: Local Planning Assistance

LPMS: Local Pavement Management System

MAC: Massachusetts Aeronautics Commission

MARPA: Massachusetts Association of Regional Planning Agencies

MARTA: Massachusetts Association of Regional Transit Authorities

MassDOT: Massachusetts Department of Transportation

MassGIS: Massachusetts Geographic Information System

MBTA: Massachusetts Bay Transportation Authority

MEMA: Massachusetts Emergency Management Agency

MEPA: Massachusetts Environmental Policy Act

MHC: Massachusetts Historical Commission

MIS: Major Investment Study

MISER: Massachusetts Institute for Social and Environmental Research

MOU: Memorandum of Understanding

MPO: Metropolitan Planning Organization

MTA: Massachusetts Turnpike Authority

MUTCD: Manual on Uniform Traffic Control Devices

MWRA: Massachusetts Water Resources Authority

NAAQS: National Ambient Air Quality Standards

NEPA: National Environmental Policy Act

NFA: Non Federal-Aid

NHS: National Highway System

NOx: Any of the Oxides of Nitrogen

NTD: National Transit Database

NTS: National Transportation System

NTSB: National Transportation Safety Board

OCI: Overall Condition Index (used with pavement)

OEDP: Overall Economic Development Program

OTP: Office of Transportation Planning

PCI: Pavement Condition Index

PL: Metropolitan Planning funds

(federal)

PMS: Pavement Management System

PMUG: Pavement Management User's Group

POP: Public Outreach Program

PPP: Public / Private Partnership

PRC: Project Review Committee

PRWORA: Personal Responsibility & Work Opportunity Reconciliation Act

PUD: Planned Unit Development

PWED: Public Works/Economic Development

RIF: Roadway Inventory Files

RFP: Request For Proposal

RFQ: Request For Qualifications

ROW: Right Of Way

RPA: Regional Planning Agency

RSA: Roadway Safety Audit

RTA: Regional Transit Authority

RTP: Regional Transportation Plan

SAFETEA-LU: Safe, Accountable, Flexible and Efficient Transportation Equity Act

SAR: Strategic Assessment Report

SD: Structurally Deficient

SIP: State Implementation Plan (for Air Quality)

SOV: Single Occupancy Vehicle

SPR: Statewide Planning & Research

STIP: State Transportation Improvement Program

STP: Surface Transportation Program

TAZ: Transportation Analysis Zone

TBD: Transportation Benefit District

TCM: Transportation Control Measures

TDM: Travel Demand Management

TEA-21: Transportation Equity Act for the 21st Century

TEC: Transportation Evaluation Criteria

TI: Transportation Improvement (in SAFETEA-LU)

TIF: Transportation Information Forum

TIP: Transportation Improvement Program

TMA: Transportation Management Association

TMC: Turning Movement Count

TOFC: Trailer On Flat Car

TRB: Transportation Research Board

TSM: Transportation Systems Management

UPWP: Unified Planning Work Program

VMS: Variable Message Sign

VMT: Vehicle Miles of Travel